SECTION1 SUMMARY
KEY TO ABBREVIATIONS

A	AC	:Alternating Current
	ACC	:Automatic Color Control
	ACSS	:Automatic Channel Setting System
	ADJ	:Adjust
	A/E	:Audio Erase
	AFC	:Automatic Frequency Control
	AFT	:Automatic Fine Tuning
	AGC	:Automatic Gain Control
	A.H.SW	:Audio Head Switch
	ALC	:Automatic Level Control
	AM	:Amplitude Modulation
	AMP	:Amplifier
	ANT	:Antenna
	APC	:Automatic Phase Control
	ASS'Y	:Assembly
	AUX	:Auxiliary
B	B	:Base
	BGP	:Burst Gate Pulse
	BPF	:Bandpass Filter
	BS	:Brodcasting Satellite
	BW or B/W	:Black and White
C	C	:Capacitor, Chroma, Collector
	CAN	:Cancel
	CAP	:Capstan
	CAP.BRK	:Capstan Brake
	CAP.RVS	:Capstan Reverse
	CATV	:Cable Television
	CBA	:Circuit Board Assembly
	CCD	:Charge Coupled Device
	C.CTL	:Chro Control, Capstan Control
	CFG	:Capstan Frequency Generator
	CHROMA	:Chrominance
	CNR	:Chroma Noise Redution
	COMB	:Combination Comb Filter
	COMP	:Comparator Composite Compensation
	CONV	:Converter
	C.ROT SW	:Color Rotary Switch
	CS	:Chip Selcet
	C.SYNC	:Composite Synchronization
	CTL DIV	:Control Divide
	CUR	:Current
	CYL	:Cylinder
D	D	:Drum, Digital, Diode, Drain
	D.ADJ	:Drum Adjust
	DC	:Direct Current
	D.CTL	:Drum Control
	DEMOD	:Demodulator
	DET	:Detector
	DEV	:Deviation
	DHP	:Double High Pass
	DIGITRON	:Digital Display Tube
	DL	:Delay line
	DOC	:Drop Out Compensator
	DUB	:Dubbing
	D.V SYNC	:Dummy Vertical Synchronization
E	E	:Emitter
	EE	:Electric to Eletric
	EMPH	:Emphasis
	ENA	:Enable
	ENV	:Envelope
	EP	:Extended Play
	EQ	:Equalizer
	EXP	:Expander
F	F	:Fuse
	FB	:Feed Back
	FBC	:Feed Back Clamp
	FE	:Full Erase
	FG	:Frequency Generator
	FL	:Filter
	FM	:Frequency Modulation
	F/R	:Front/Rear
	FS	:Frequency Synthesizer
	FSC	:Subcarrier Frequency
	F/V	:Frequency Voltage
G	GEN	:Generator
H	H	:High, Horizontal
I	IC	:Integrated Circuit
	IF	:Intermediate Frequency
	INS	:Insert
L	L	:Low, Left, Coil
	LD	:LED
	LD VTG CTL	:Loading Voltage Control
	LECHA	:Letter Character
	L.M	:Level Meter
	LP	:Long Play
	LPF	:Low Pass Filter
M	MAX	:Maximum
	MD	:Modulator
	MECHA.CTL	:Mechanism Control
	MIC	:Microphone
	MIN	:Minimum
	MIX	:Mixer, Mixing
	M.M.	:Monostable, Multivibrator
	MMV	:Mono Multi Vibrator
	MOD	:Modulation, Modulator
	MODEM	:Modulator-Demodulator
	MPX	:Multiplex
N	NR	:Noise Reduction
O	OSC	:Oscillator
	OSD	:On Screen Display
P	PB	:Playback
	PCB	:Printed Circuit Board
	P.CTL	:Power Control
	PRE-AMP	:Preamplifier
	P.F	:Power Failure
	PG	:Pulse Generator
	PLL	:Phase Locked Loop
	PREM.DET	:Premire Detect
	P.P	:Peak-to-Peak
	PS	:Phase Shift
	PWM	:Pulse Width Modulation
	PWR CTL	:Power Control
Q	Q	:Transistor
	QH	:Quasi Horizontal
	QSR	:Quick Setting Record
	QTR	:Quick Timer Record
	QV	:Quasi Vertical
R	R	:Resistor, Right
	RE(or RC)	:Remocon, Receiver
	REC	:Recording
	REC S 'H'	:Record Start 'Hight'
	REF	:Reference
	REG	:Regulated, Regulator
	REMOCON	:Remote Control(unit)
	RF	:Radio Frequency
	R/P	:Record/Playback
	RTC	:Reel Time Counter
S	S	:Serial
	S.ACCEL	:Slow Accel
	SAOP	:Second Audio Program
	SC	:Scart, Simulcast
	S.DET	:Secam Detect
	SH	:Shift
	SHARP	:Sharpness
	SIF	:Sound Intermediate Frequency
	SLD	:Side Locking
	S/N	:Signal to Noise Ratio
	SP	:Standard Play
	ST	:Stereo
	SUB	:Subtract, Subcarrier
	SW or S/W	:Switch
	SYNC	:Synchronization
	SYSCON	:System Control
T	T	:Coil
	TP	:Test Point
	TR	:Transistor
	TRK	:Tracking
	TRANS	:Transformer
	TU	:Tuner, Take-up
U	UHF	:Ultra High Frequency
	UNREG	:Unregulated
V	V	:Volt, Vertical
	VA	:Always Voltage
	VCO	:Voltage Controlled Oscillator
	VGC	:Voltage Gain Control
	VHF	:Very High Frequency
	V.H.SW	:Video Head Switch
	VISS	:VHS Index Search
	VPS	:Video Program System
	VR	:Variable Resistor or Volume
	V-SYNC	:Vertical Synchronization
	VTG	:Voltage
	VV	:Voltage to Voltage
	VXO	:Voltage X-tal Oscillator
W	W	:Watt
	WHT	:White
	W/O	:With out
X	X-TAL	:Crystal
Y	Y/C	:Luminance/Chrominance
	YNR	:Luminance Noise Reduction
Z	ZD	:Zener Diode

PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by LG Electronics Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS

The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.

The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

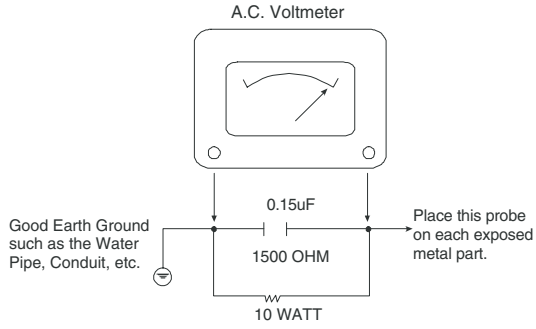
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items trans-ported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


A.C. Voltmeter
0.15uF
Good Earth Ground such as the Water Pipe, Conduit, etc.
1500 OHM
Place this probe on each exposed metal part.
10 WATT

X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of x-radiation. The only potential source of x-rays in current TV receivers is the picture tube. However, this tube does not emit x-rays when the HV is at the factory-specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high-voltage supply and, under certain circumstances may produce radiation in excess of desirable levels.
2. Only factory-specified CRT anode connectors must be used.
3. It is essential that the service personnel have available an accurate and reliable high-voltage meter.
4. When the high-voltage circuitry is operating properly, there is no possibility of an x-radiation problem. Every time a chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter, to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. When troubleshooting and making test measurements in a product with a problem of excessively high voltage, avoid being unnecessarily close to the picture tube and the high voltage power supply. Do not operate the product longer than necessary to locate the cause of excessive voltage.
6. Refer to the CRT Anode High Voltage Measurement and Shutdown Adjustment procedures described in the appropriate text (where used).

IMPLOSION

1. All direct view picture tubes are equipped with an integral implosion protection system; take care to avoid damage during installation.
2. Use only the recommended factory replacement tubes.

TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using a cart or stand that has not been listed by Underwriters Laboratories, Inc. for use with its specific model of television receiver or generically approved for use with TVs of the same or larger screen size.
8. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICING PRECAUTIONS

CAUTION : Before servicing the VCR covered by this service data and its supplements and ADDENDUMS, read and follow the *SAFETY PRECAUTIONS. NOTE* : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.
Remember Safety First:

General Servicing Precautions

1. Always unplug the VCR AC power cord from the AC power source before:
   (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
   (2) Disconnection or reconnecting any internal electrical plug or other electrical connection.
   (3) Connecting a test substitute in parallel with an electrolytic capacitor.
   Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this VCR or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
   Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with whitch instruments covered by this service manual might be equipped.

5. Do not apply AC power to this VCR and/or any of its electrical assemblies unless all solid-state device heat sinks are cerrectly installed.

6. Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a GROUNDED-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified a “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protec tive package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

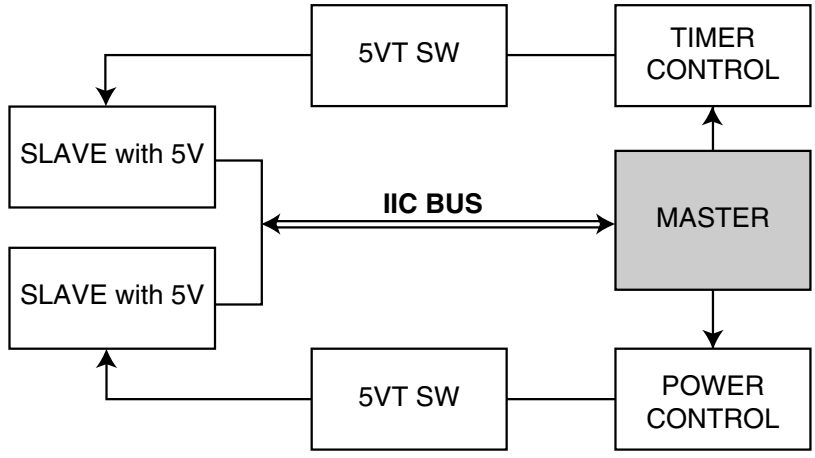
PROPOSAL FOR APPLYING SHORT PROTECTION

• The Contents of Examination

As all the IC that is applied to VCR is controlled by IIC, mutual communication, if Vcc of IC is short or open with detecting 'Acknowledge' data of the specific IC according to each power(5V, 5VT) μ-COM gets unable to detect 'ACK' data.

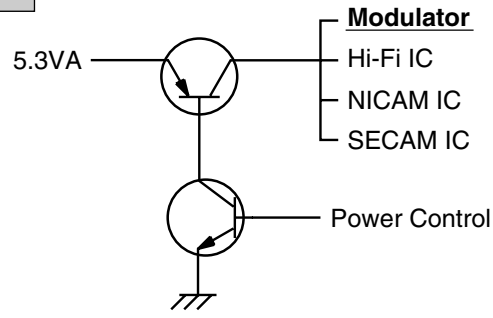
μ-COM regards this case as abnormal one and if it can't detect 'ACK' data for a certain time(3.5 sec) the signal of 'Power Control' and 'Timer Control' are switched to 'Low'. As a result POWER Switching TR is kept from generating heat and fire.

Conception BLOCK Diagram

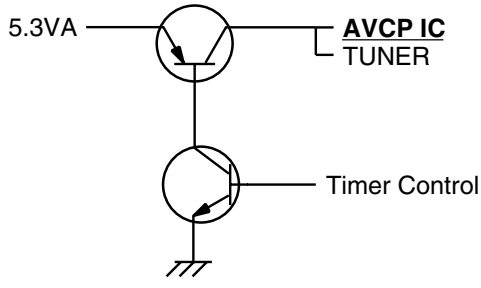


• POWER for each IC

5.2V



5.2VT



• IC to detect 'ACK' data is selected as below because IC is different in accordance to region and option

S/	5V POWER	SECAM IC
Series	5VT POWER	AVCP IC
P/Y/I	5V POWER	Modulator
Series	5VT POWER	AVCP IC

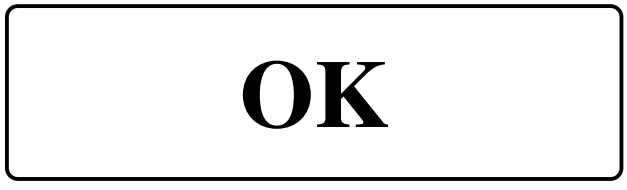
*Short protection off mode : DJ01 Diode in

SERVICE NOTICE ON REPLACING EEPROM

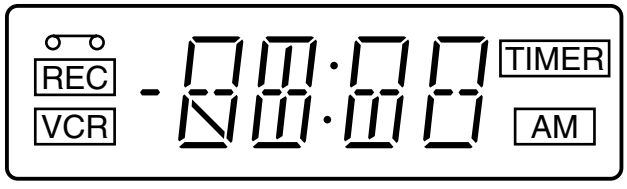
In case that defective EEPROM of PAL models is replaced, to operate these sets from the initial state MP KEY must be repaired as well before delivering to the customer.
If MP KEY isn't repaired the setting of RF OUT channel or LANGUAGE might be different from that for custormer's country.

•**MP KEY** : In case of PAL VCR if holding the REC button on the front panel and the CLEAR button on the remote control handset for 5 ~ 7 seconds with power being switch all and no tapes, OK is displayed at FLD for FLD models and LED becomes on for LED CLOCK models. This is the state that initializing EEPROM is finished.
(In case of PAL VCP if holding the REC button on the front panel and the MENU button on the remote control handset for 5 ~ 7 seconds with power being off and no tapes, All the LED DOTs become on. This is the state that initializing EEPROM is finished.)

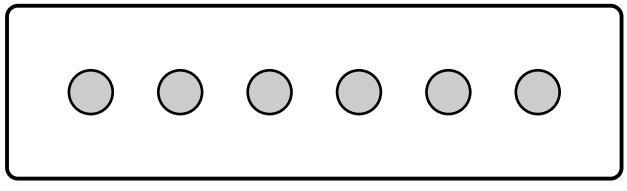
•**MP KEY's function** : MP KEY sets EEPROM's data up to the initial state.



• **FLD MODEL:**
MP KEY "OK"



• **LED CLOCK MODEL:**
MP KEY Switch all on a Light



• **LED DOT MODEL:**
MP KEY Switch all on a Light

SPECIFICATIONS

General

Power	: 200~240V, 50Hz
Power consumption	: Approx. 12 watts(Energy Saving mode : 3 watts)
Video Head system	: Rotary 2heads, helical scanning system (2HD MODEL) Double azimuth 4 heads, helical scanning system (4HD Hi-Fi Model)
Tape speed	: 23.39 mm/sec (SP mode)11.69 mm/sec(LP mode)
Tape format	: Tape width 1/2" (12.7 mm high density VHS tape)
Maximum recording time	: 4 hours in SP mode/8 hours in LP mode (with E-240 tape)
Rewind time	: Approx. 150 sec. (with E-180 tape)
Dimensions (W X H X D)	: 360 x 94.5 x 270 mm
Weight	: 9.0 lbs. (4.0 kg)
Operating temperature	: 41°F-95°F (5°C-35°C)
Operating humidity	: Less than 80%
Timer	: 24 hours display type

Video

Television system	: CCIR standard (625 lines, 50 fields) PAL colour signal
Recording format	: PAL B/G
Input level	: VIDEO IN (SCART, RCA type) 1.0 Vp-p, 75 ohm, unbalanced
Output level	: VIDEO OUT (SCART type) 1.0 Vp-p, 75 ohm, unbalanced
Signal to noise ratio	: More than 43 dBm

Audio

Input level	: AUDIO IN (SCART, RCA type) Scart type : -6.0dBm, more than 10kΩ RCA type : -6.0 dBm, more than 47kΩ
Output level	: AUDIO OUT (SCART, RCA type) Scart type : -6.0dBm, less than 1kΩ RCA type : -6.0 dBm, less than 1kΩ
Audio track	Mono track & Hi-Fi track
Audio signal to noise ratio	: Normal : More than 70 dBm(JIS A filter)
Audio dynamic range	: Hi-Fi audio : More than 85 dBm(JIS A filter)

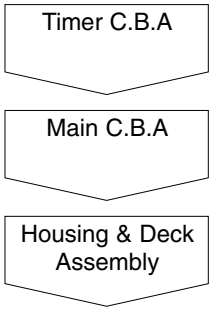
• Design and specifications are subject to change without notice.

:Hi-Fi Model only

SECTION 2 CABINET & MAIN CHASSIS
SERVICE METHOD

Electrical Part

(1) Re-assembly Flow for service like Fig. 2-1



(2) To check and replace Electrical parts

① Re-assemble the unit according to No.1) Re-assembly Flow.
② Place the unit like Fig. 2-1
③ Check and replace Electrical parts.

NOTE :

① Insert Video Cassette Tape inversely like Fig. 2-1 to check and replace defective parts.
② In disassembling and reassembling, be careful not to damaged CST switch.

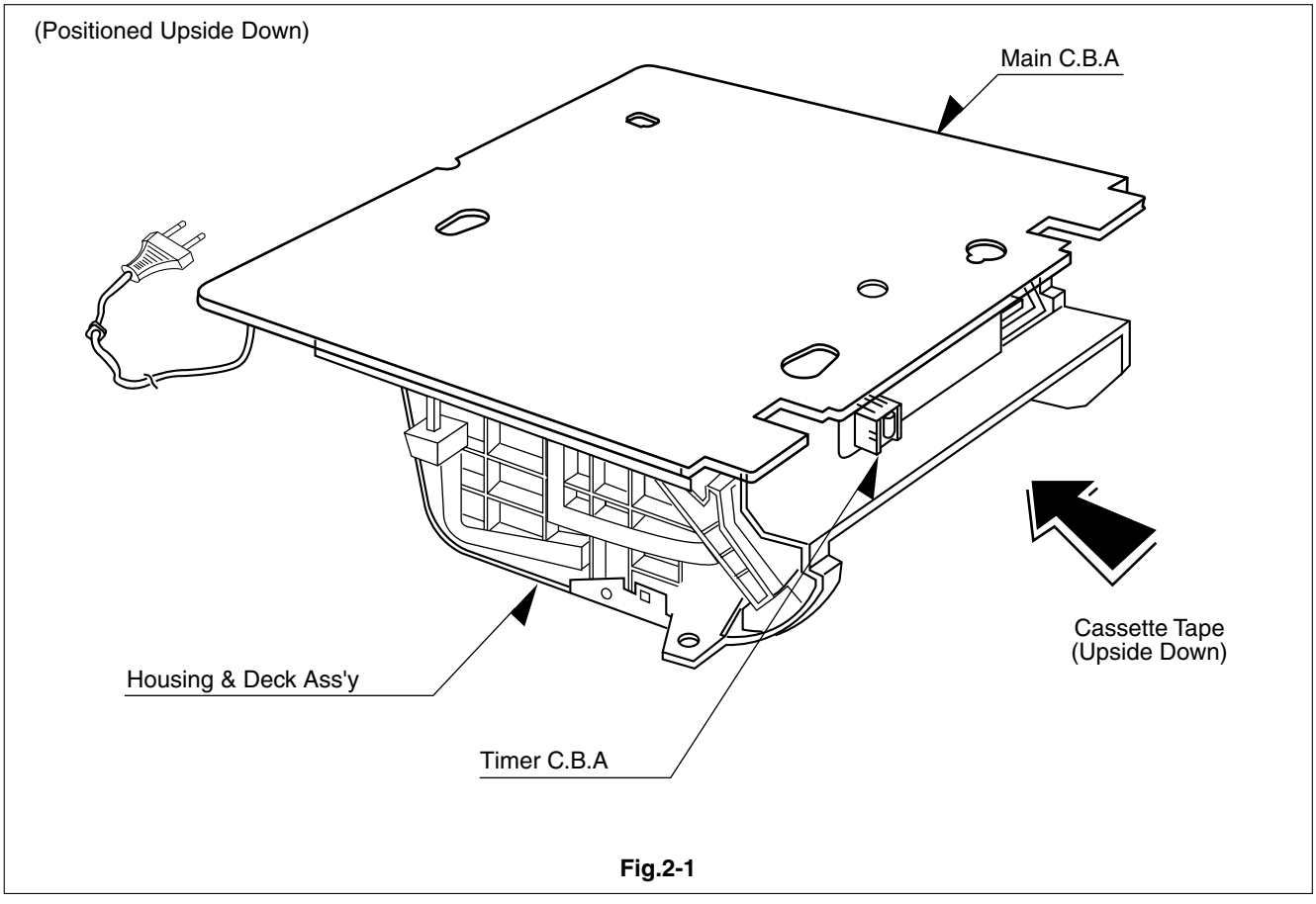
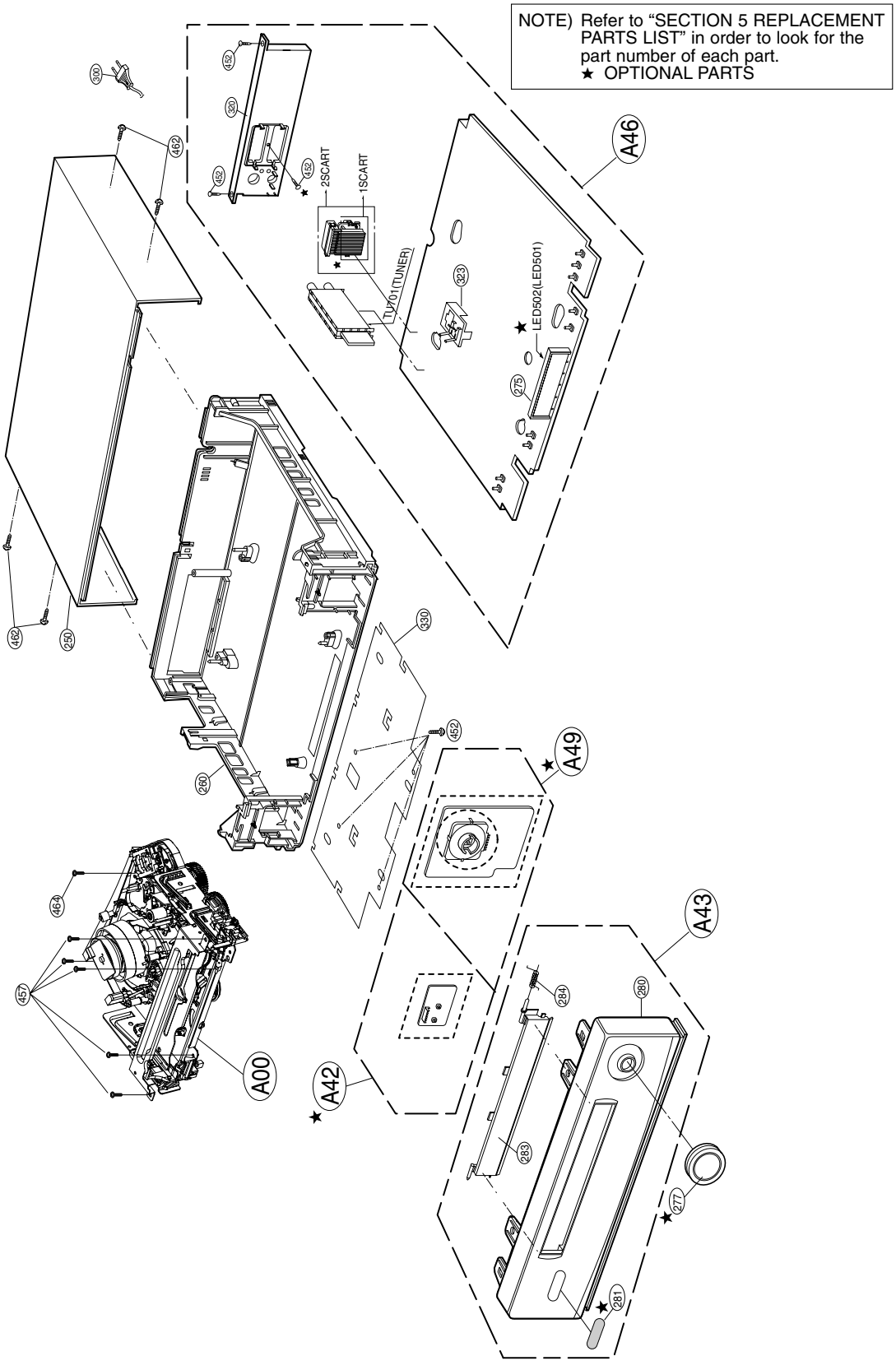


Fig.2-1

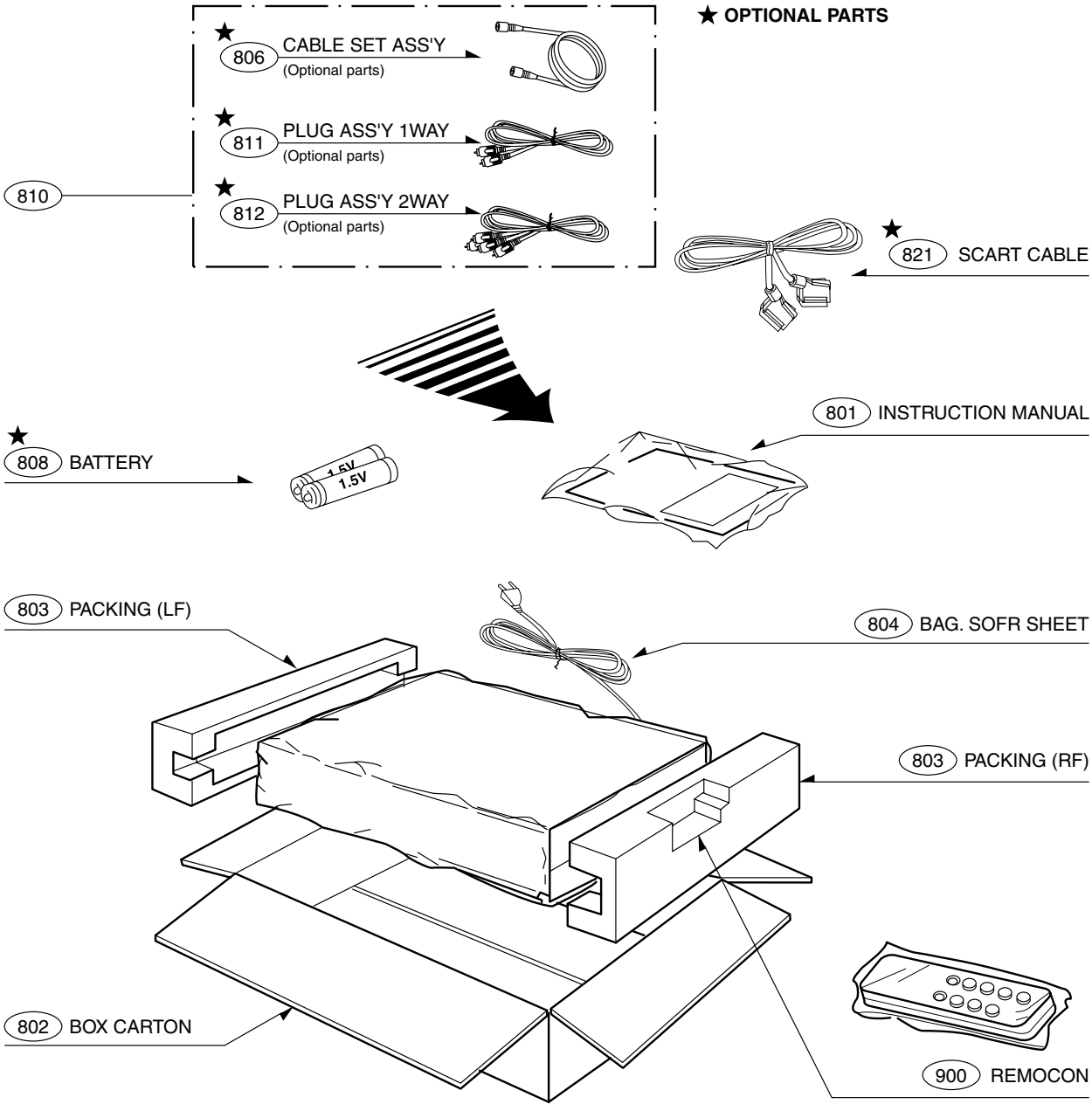
EXPLODED VIEWS

1. Cabinet and Main Frame Section



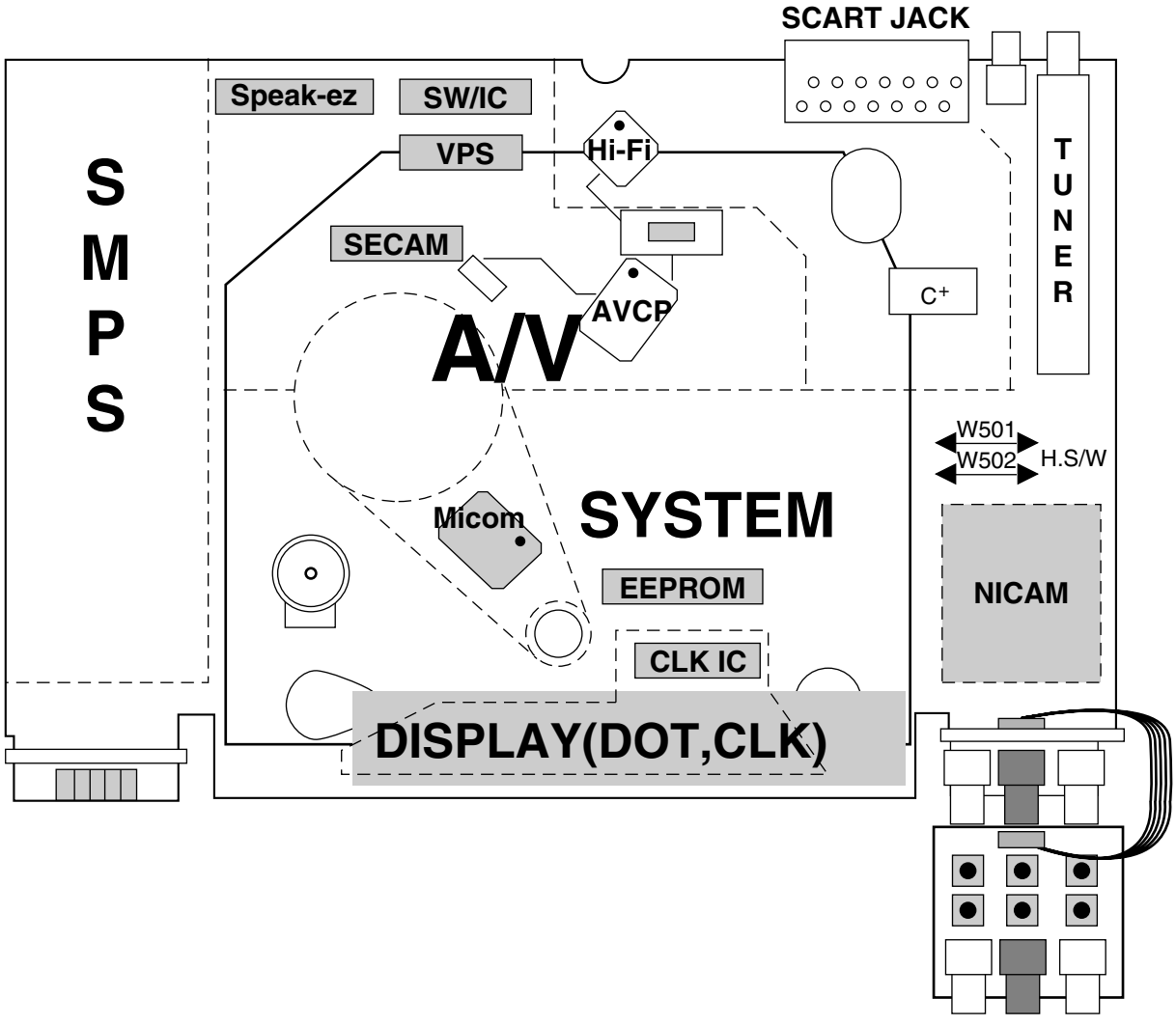
2.Packing Accessory Section

NOTE) Refer to “SECTION REPLACEMENT PARTS LIST in order to look for the part number of each part.



SECTION 3 ELECTRICAL
ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT

: Measurement point
: Adjustment point



(COMPONENT SIDE)

ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

1) PG Adjustment

• Test Equipment

a) OSCILLOSCOPE
b) PAL TEST TAPE (VHS SP)
c) JIG REMOCON (AUTO PG SETTING)

• Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(W501, W502)		6.5 ± 0.5H

- **Adjustment Procedure**

a) Insert the PAL SP Test Tape and play.
Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the “ATR” is blink after the PAL SP Test Tape is inserted.

b) Press the Auto PG KEY on JIG Remocon(1’st) or Press “REC” key on set and “CLEAR” key on Remocon.(Then check the blink “TRK OK” on CLK/LED-TRK is a Initial)

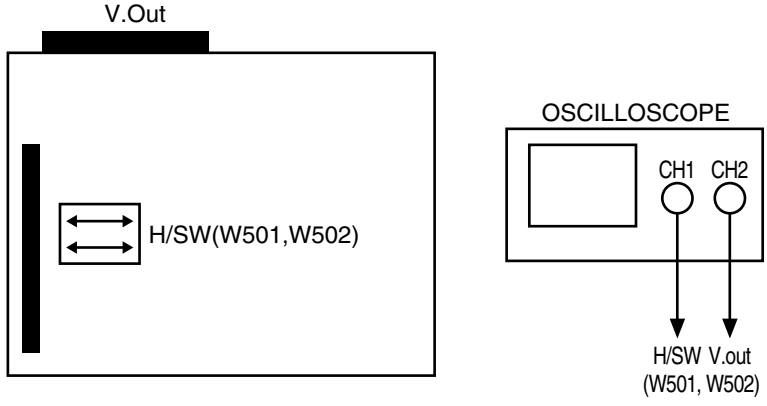
c) Press the Auto PG Key on JIG Remocon again (2’nd) or press “REC” key on set and “CLEAR” key on Remocon again.(Then check the blink “PG NG > PG OK” on CLK/LED.)

- **Check the PG**

a) Connect the CH1 of the oscilloscope to the H/SW and CH2 to the Video out for the VCR.

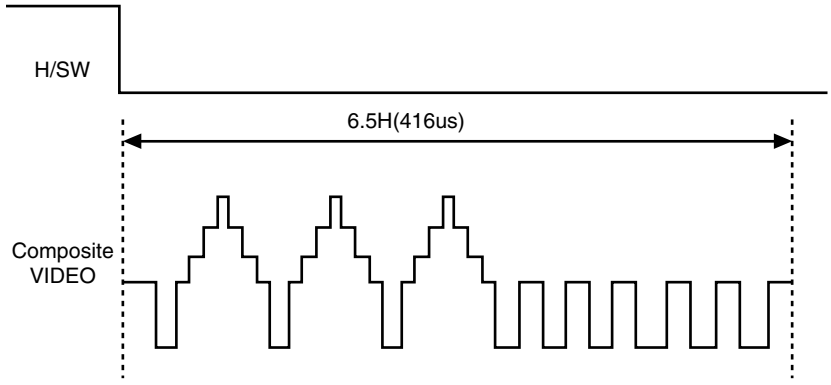
b) Trigger the mixed Video Signal of CH2 to the CH1 H/SW(W501, W502), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W501, W502) signal to the starting point of the vertical synchronized signal, to 6.5H ± 0.5H (416μs, 1H=64.0μs).

- **CONNECTION**



ELECTRICAL ADJUSTMENT PROCEDURES

- **WAVEFORM**



- **Attension and Reference**

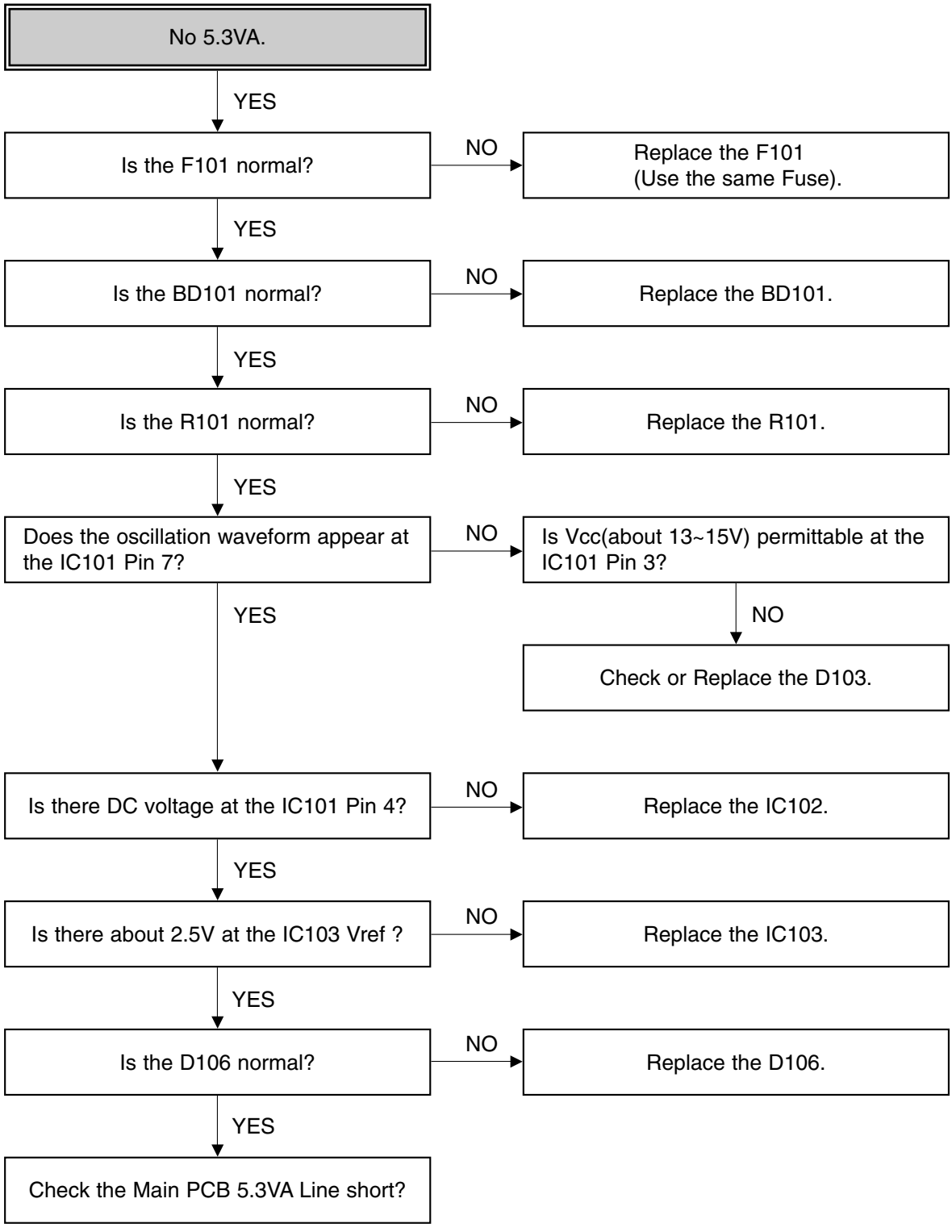
a) The PG checking must do when RF Level is Maximum and SERVO system is Locking (MTR MODE)

b) V.H/SW Level is 2Vpp.

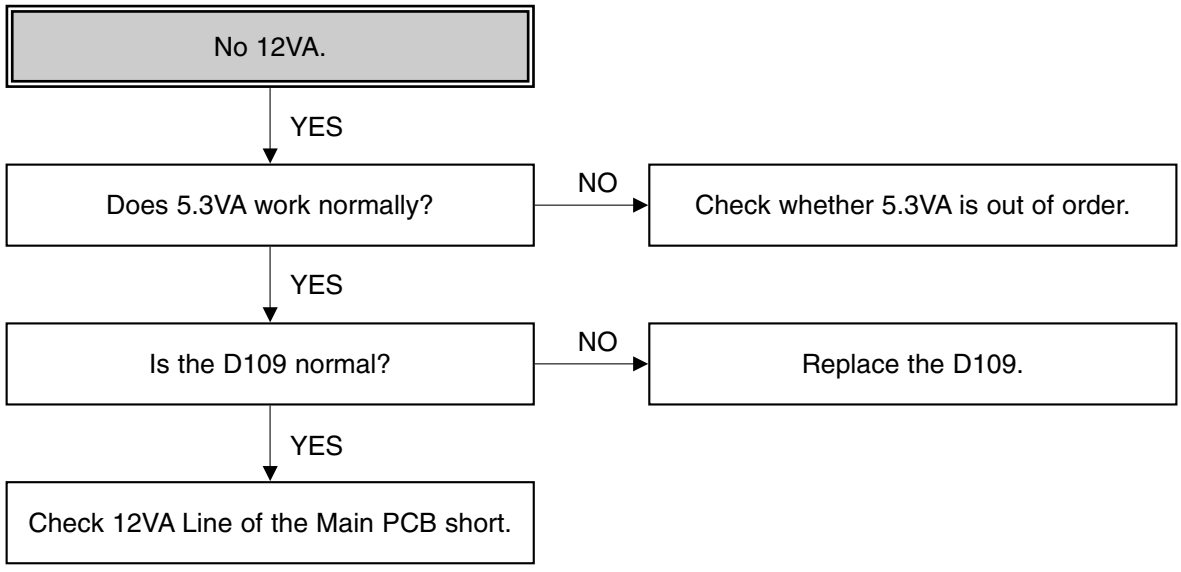
ELECTRICAL TROUBLESHOOTING GUIDE

1. Power Circuit(SMPS)

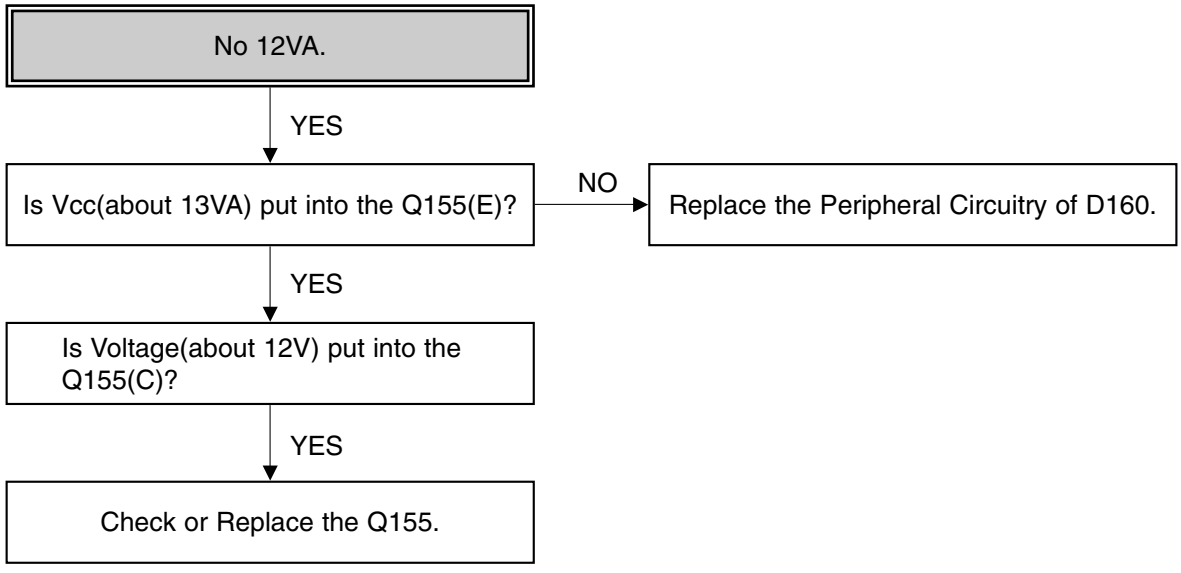
(1) No 5.3VA.



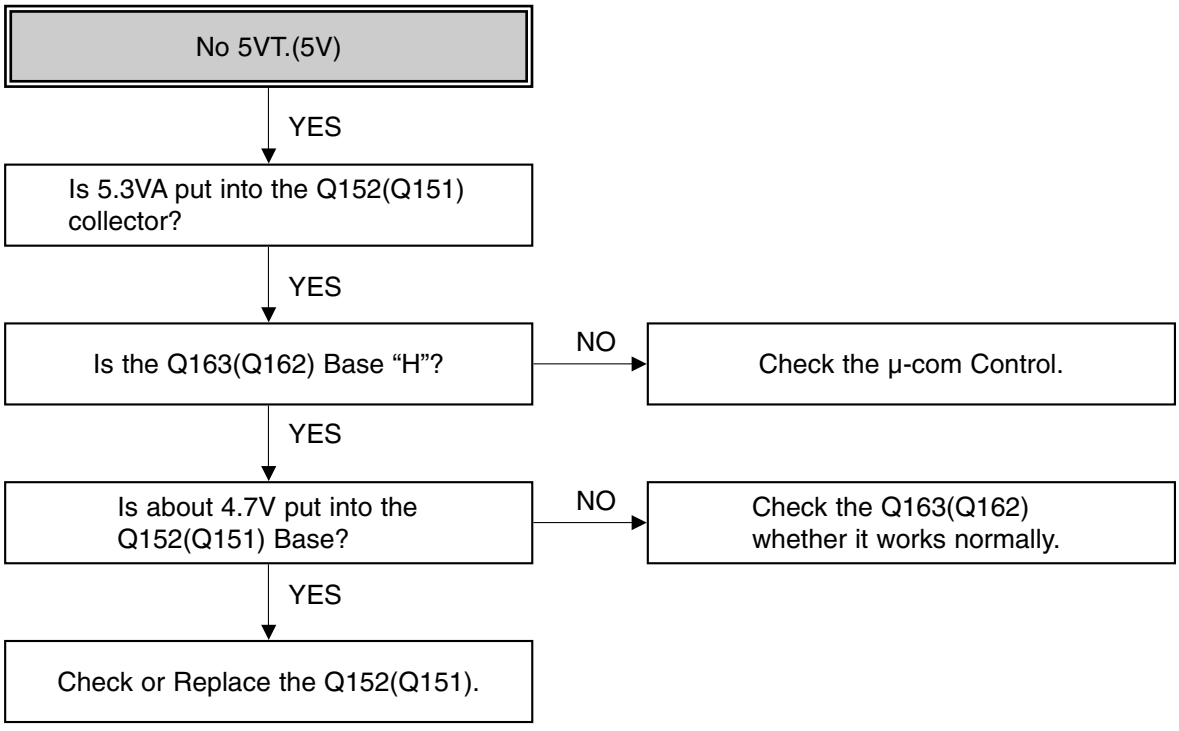
(2) No 12VA.(Capstan)



(3) No 12VA (CANAL, Buffer)

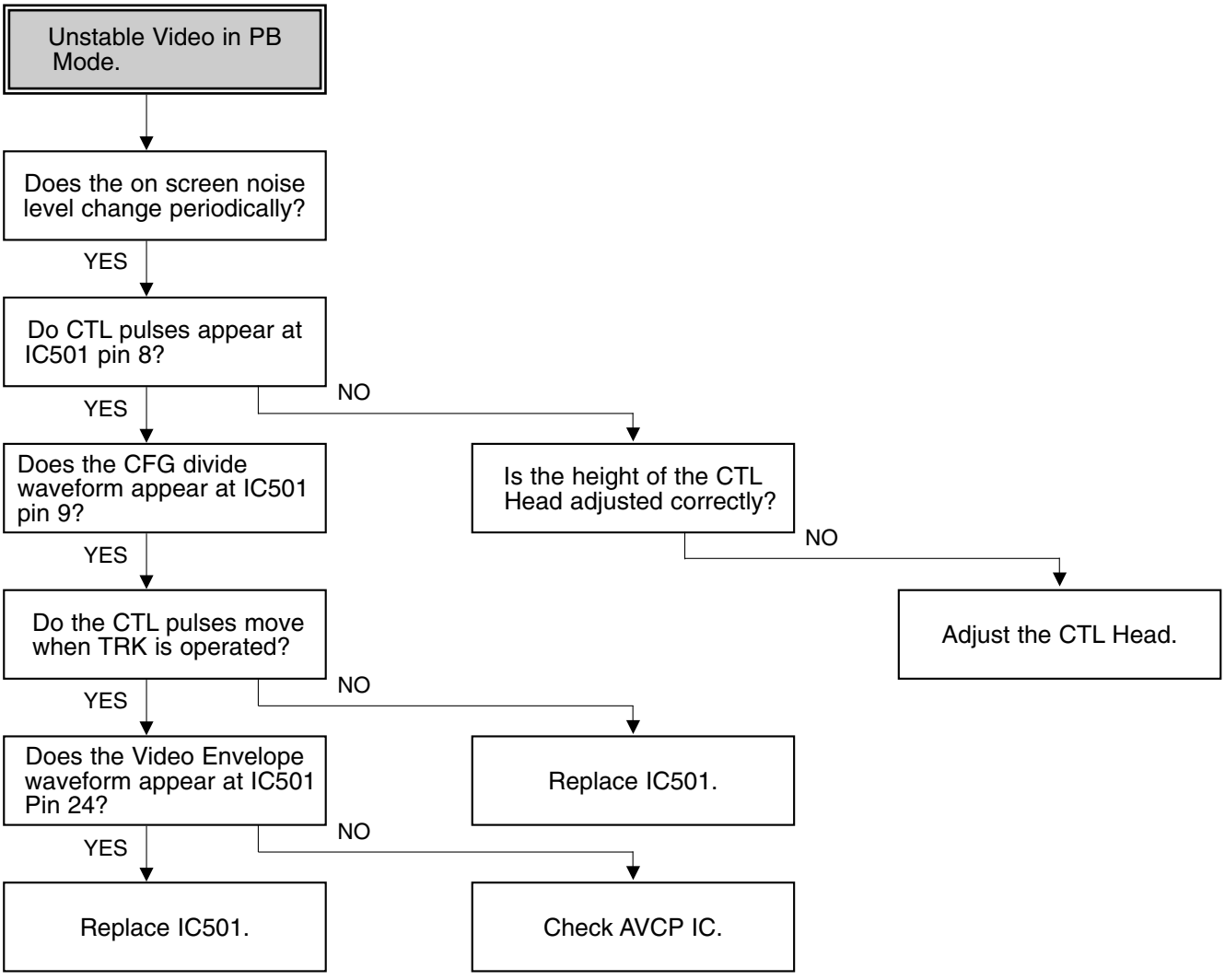


(4) No 5VT(5V)

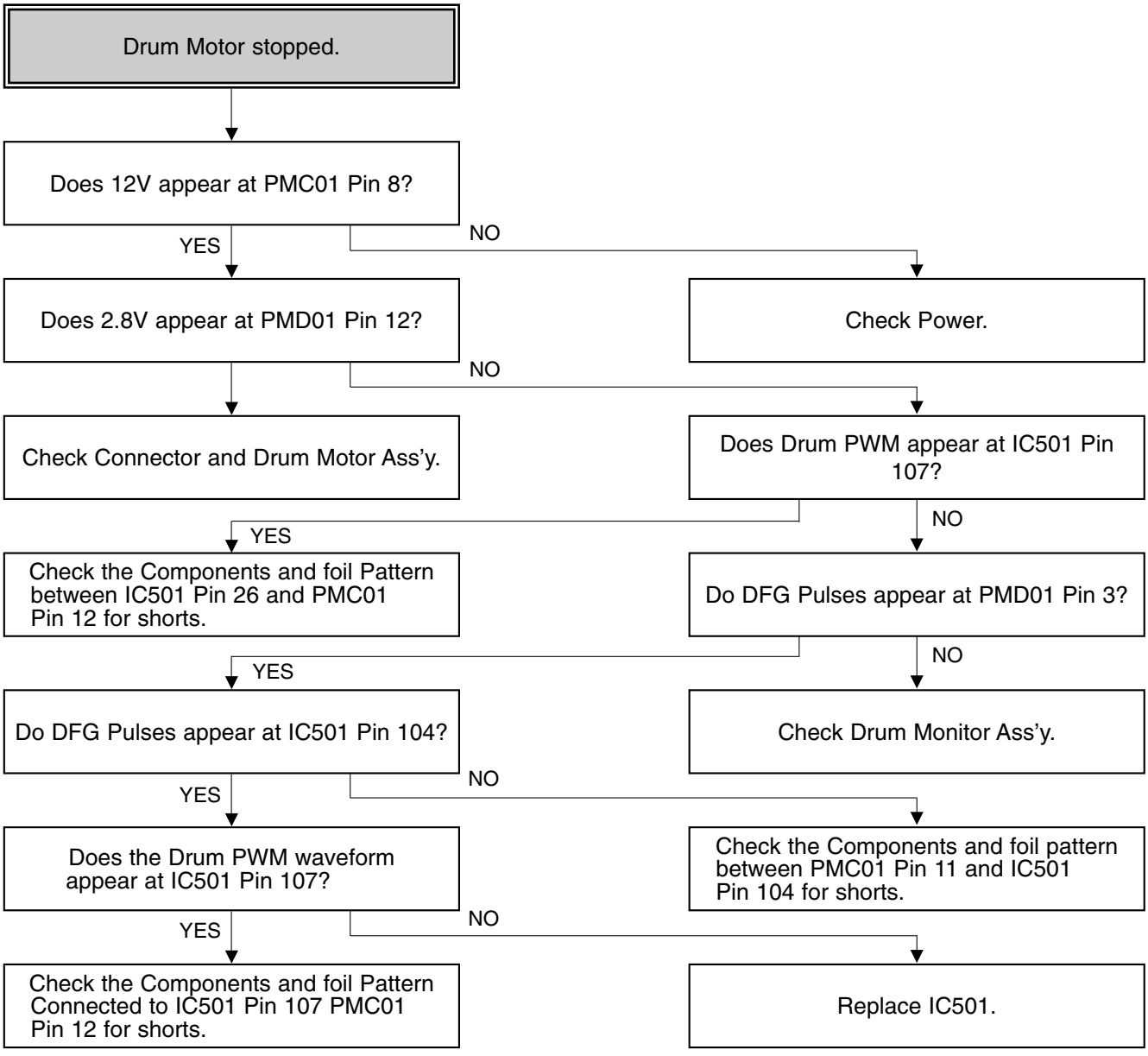

No 5VT.(5V)
YES
Is 5.3VA put into the Q152(Q151) collector?
YES
Is the Q163(Q162) Base “H”?
NO
Check the µ-com Control.
YES
Is about 4.7V put into the Q152(Q151) Base?
NO
Check the Q163(Q162) whether it works normally.
YES
Check or Replace the Q152(Q151).

2. Servo Circuit

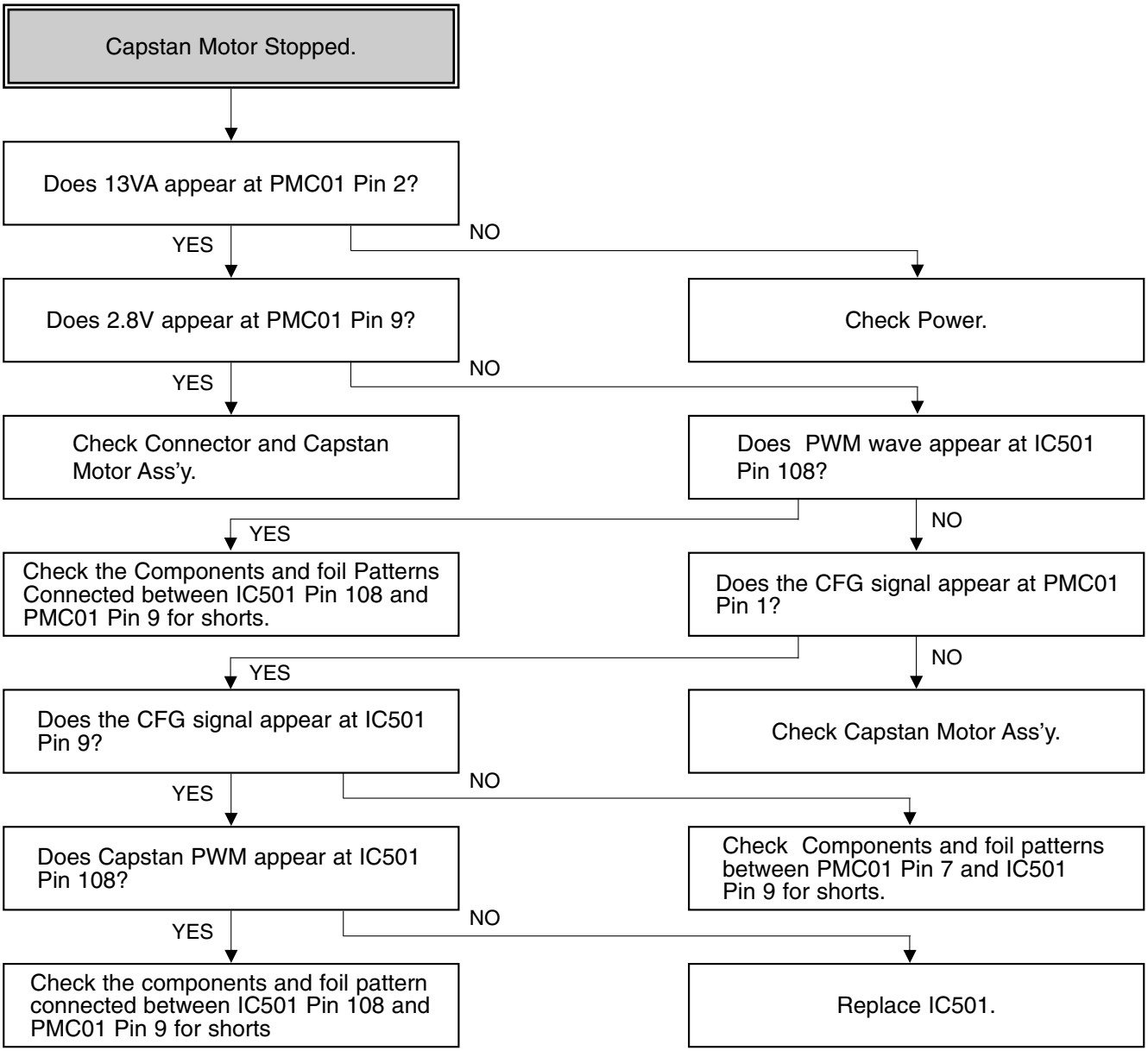
A.


Unstable Video in PB Mode.
Does the on screen noise level change periodically?
YES
Do CTL pulses appear at IC501 pin 8?
NO
YES
Does the CFG divide waveform appear at IC501 pin 9?
Is the height of the CTL Head adjusted correctly?
NO
YES
Adjust the CTL Head.
Do the CTL pulses move when TRK is operated?
NO
YES
Does the Video Envelope waveform appear at IC501 Pin 24?
Replace IC501.
NO
YES
Replace IC501.
Check AVCP IC.

B.

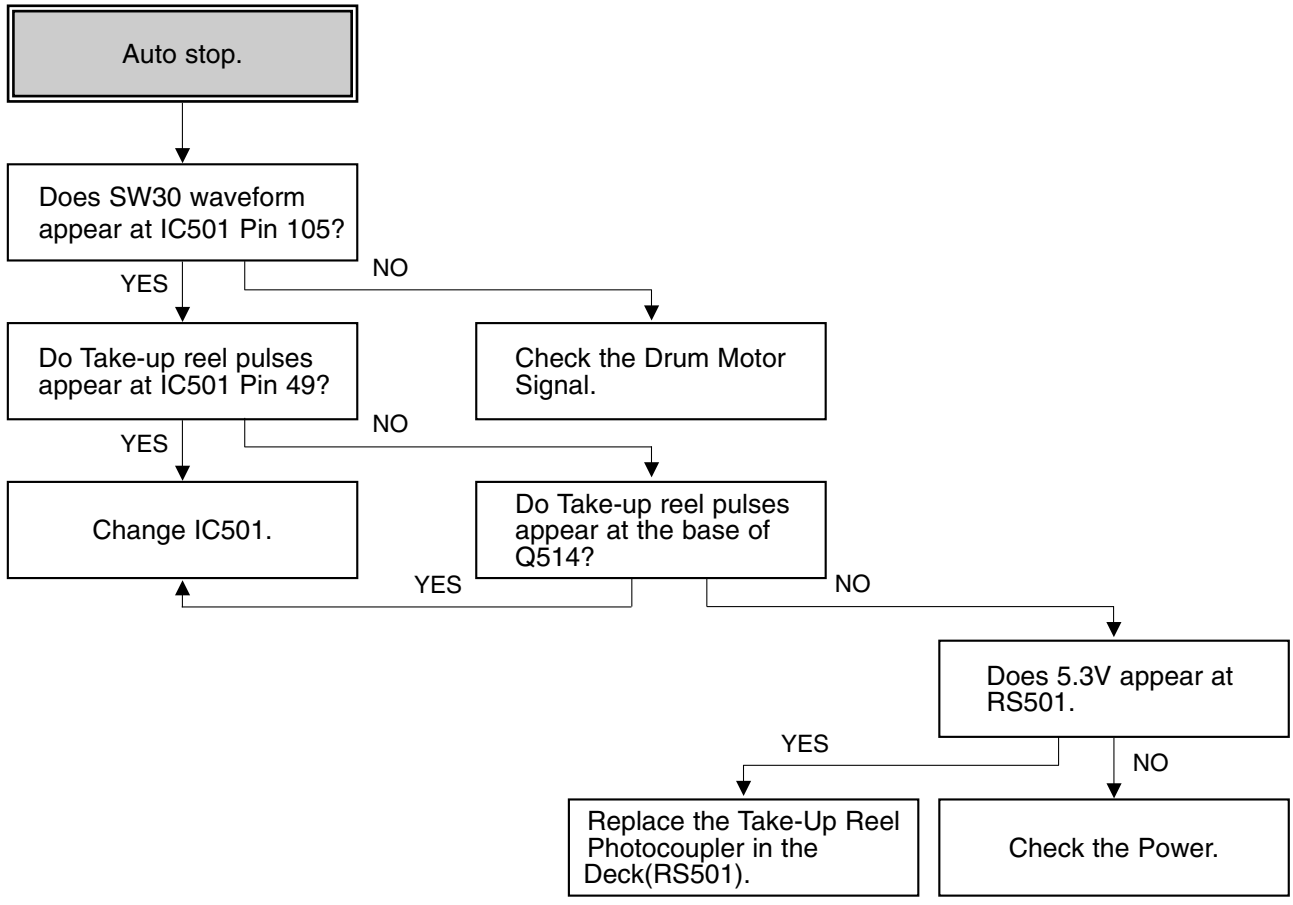

Drum Motor stopped.
Does 12V appear at PMC01 Pin 8?
NO
YES
Does 2.8V appear at PMD01 Pin 12?
Check Power.
NO
Check Connector and Drum Motor Ass'y.
Does Drum PWM appear at IC501 Pin 107?
YES
NO
Check the Components and foil Pattern between IC501 Pin 26 and PMC01 Pin 12 for shorts.
Do DFG Pulses appear at PMD01 Pin 3?
YES
NO
Do DFG Pulses appear at IC501 Pin 104?
Check Drum Monitor Ass'y.
YES
NO
Does the Drum PWM waveform appear at IC501 Pin 107?
Check the Components and foil pattern between PMC01 Pin 11 and IC501 Pin 104 for shorts.
YES
NO
Check the Components and foil Pattern Connected to IC501 Pin 107 PMC01 Pin 12 for shorts.
Replace IC501.

C.

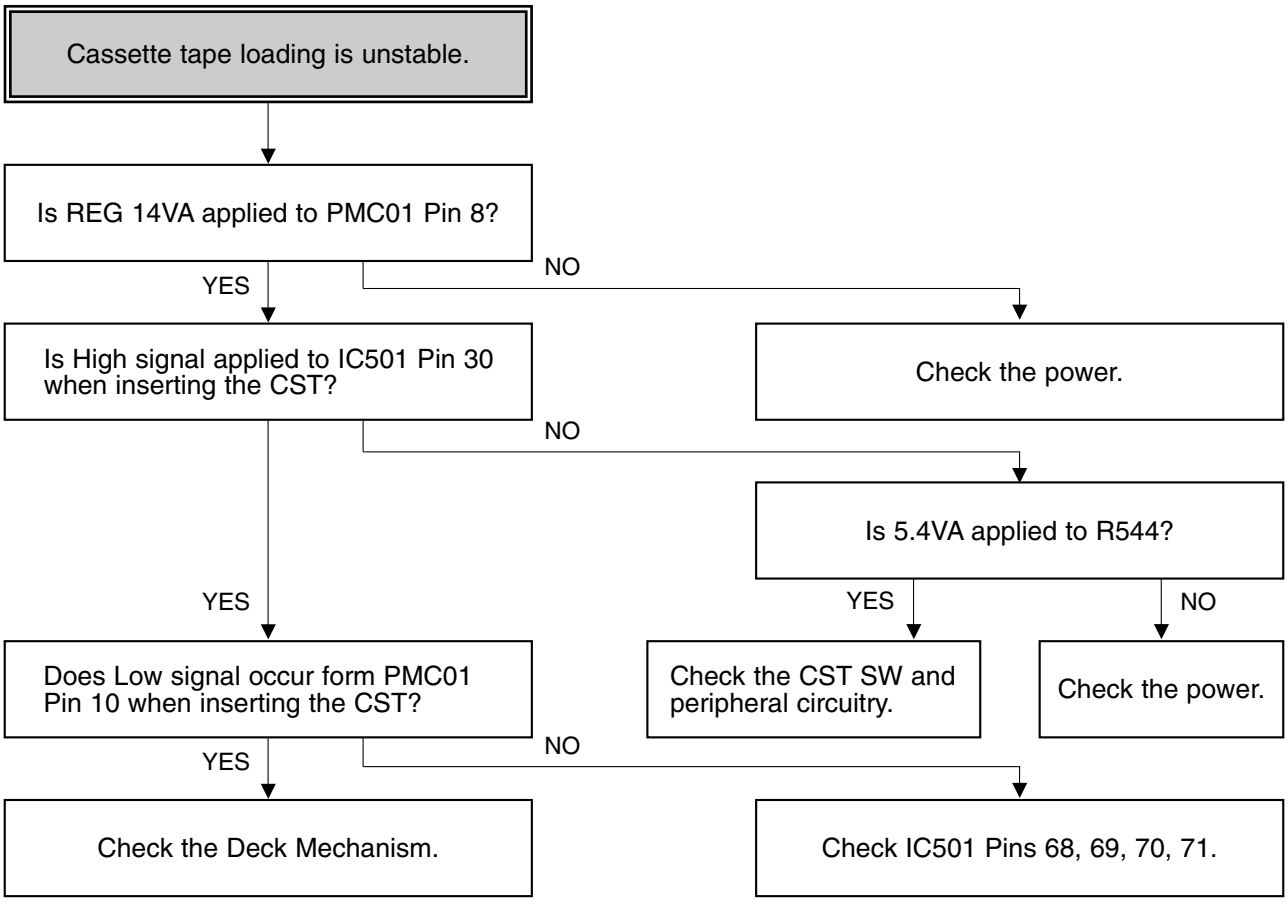

Capstan Motor Stopped.
Does 13VA appear at PMC01 Pin 2?
YES
NO
Does 2.8V appear at PMC01 Pin 9?
Check Power.
YES
NO
Check Connector and Capstan Motor Ass'y.
Does PWM wave appear at IC501 Pin 108?
YES
NO
Check the Components and foil Patterns Connected between IC501 Pin 108 and PMC01 Pin 9 for shorts.
Does the CFG signal appear at PMC01 Pin 1?
YES
NO
Does the CFG signal appear at IC501 Pin 9?
Check Capstan Motor Ass'y.
YES
NO
Does Capstan PWM appear at IC501 Pin 108?
Check Components and foil patterns between PMC01 Pin 7 and IC501 Pin 9 for shorts.
YES
NO
Check the components and foil pattern connected between IC501 Pin 108 and PMC01 Pin 9 for shorts
Replace IC501.

3. System & Front Panel Circuit

A.

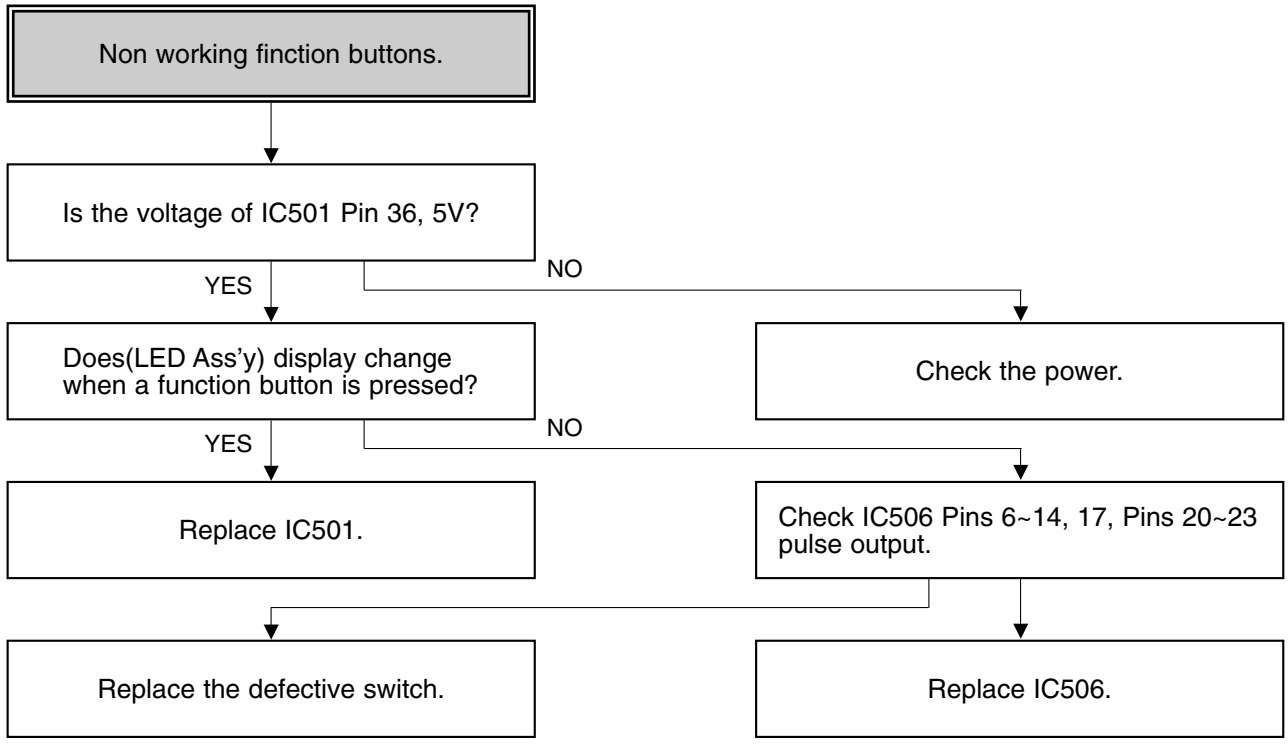


B.


Cassette tape loading is unstable.
Is REG 14VA applied to PMC01 Pin 8?
YES
NO
Is High signal applied to IC501 Pin 30 when inserting the CST?
Check the power.
NO
Is 5.4VA applied to R544?
YES
YES
NO
Does Low signal occur form PMC01 Pin 10 when inserting the CST?
Check the CST SW and peripheral circuitry.
Check the power.
YES
NO
Check the Deck Mechanism.
Check IC501 Pins 68, 69, 70, 71.

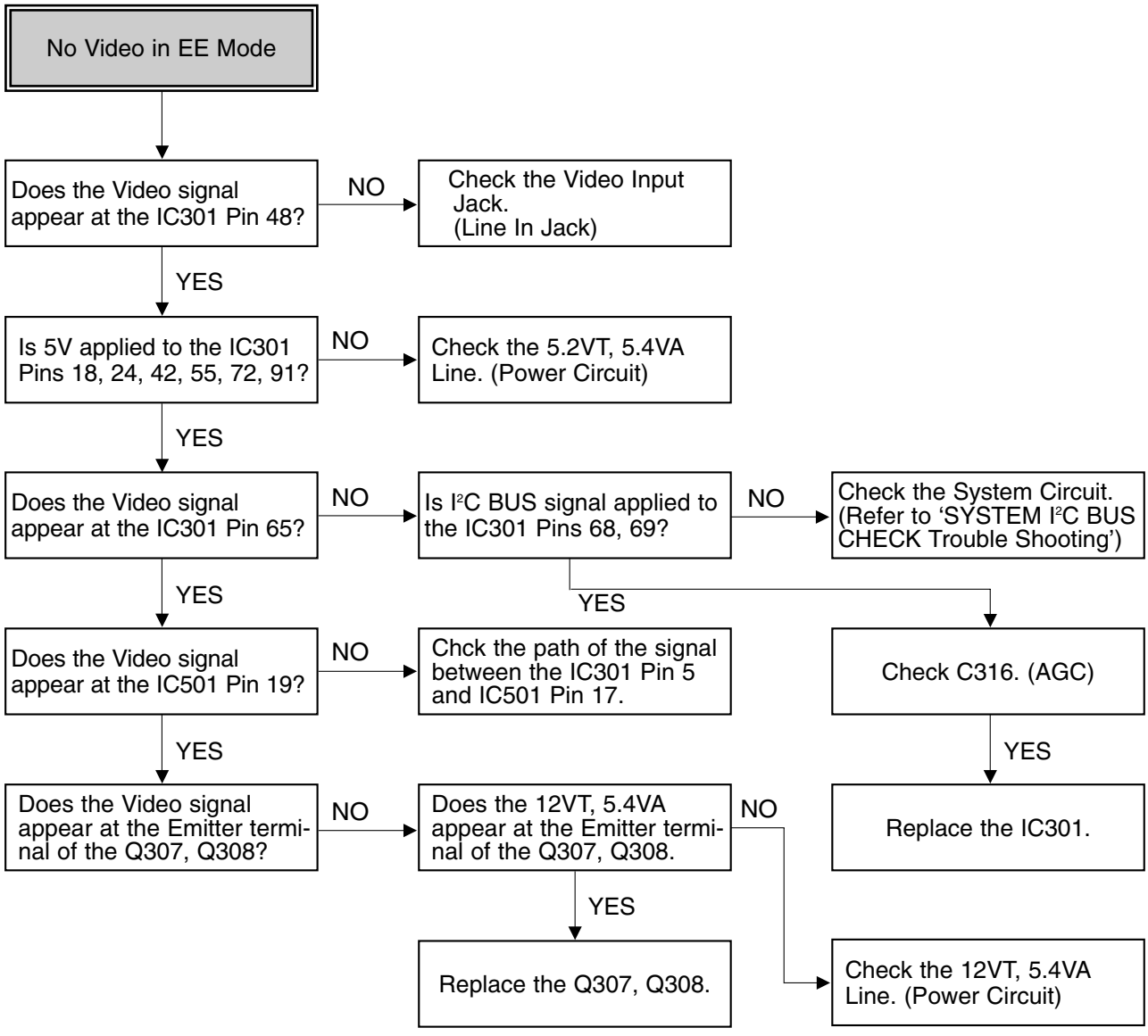
NOTE : Auto stop may also be caused by lack of lubrication,due to dried grease or oil.

C.

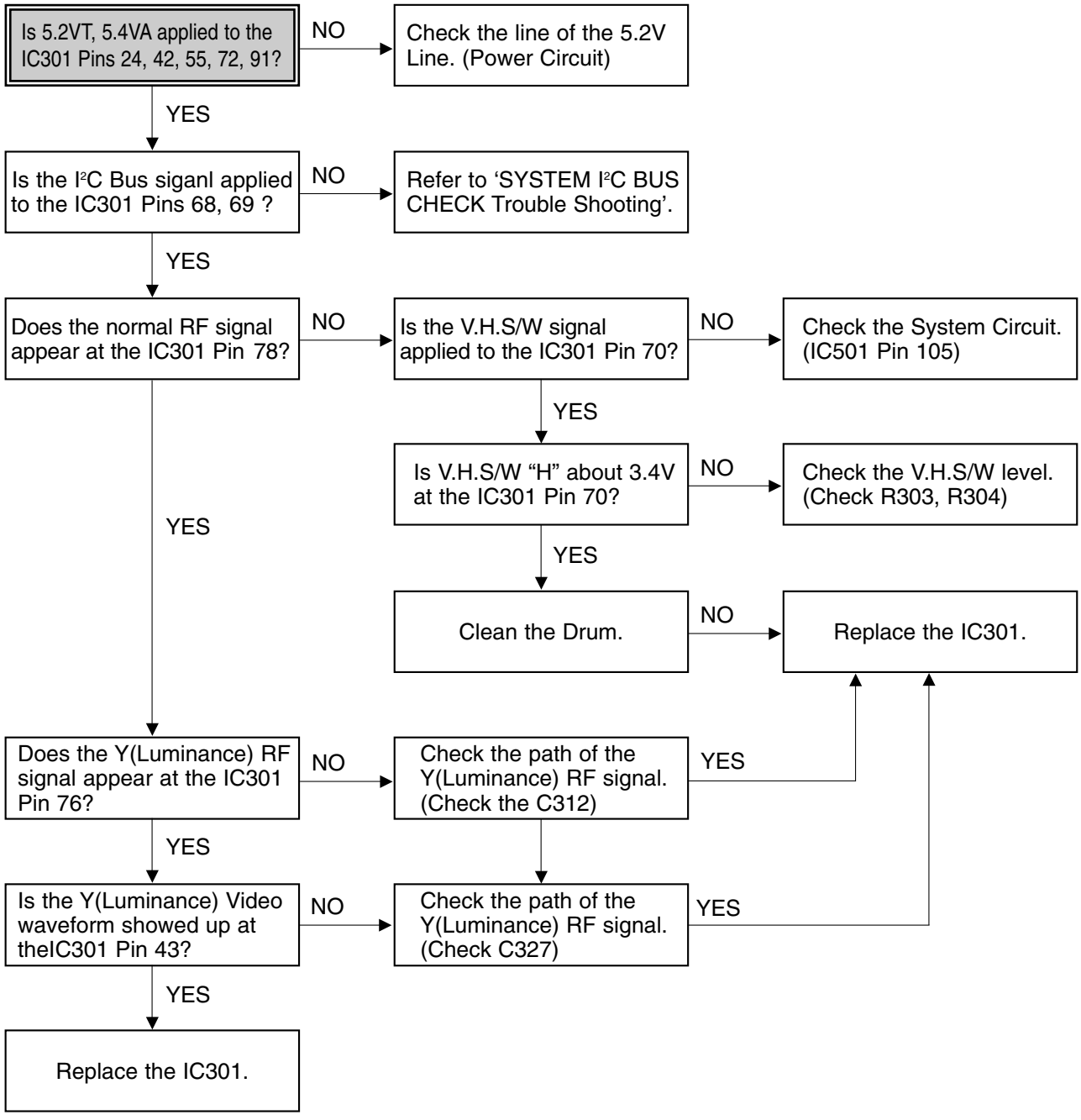


4. Y/C CIRCUIT

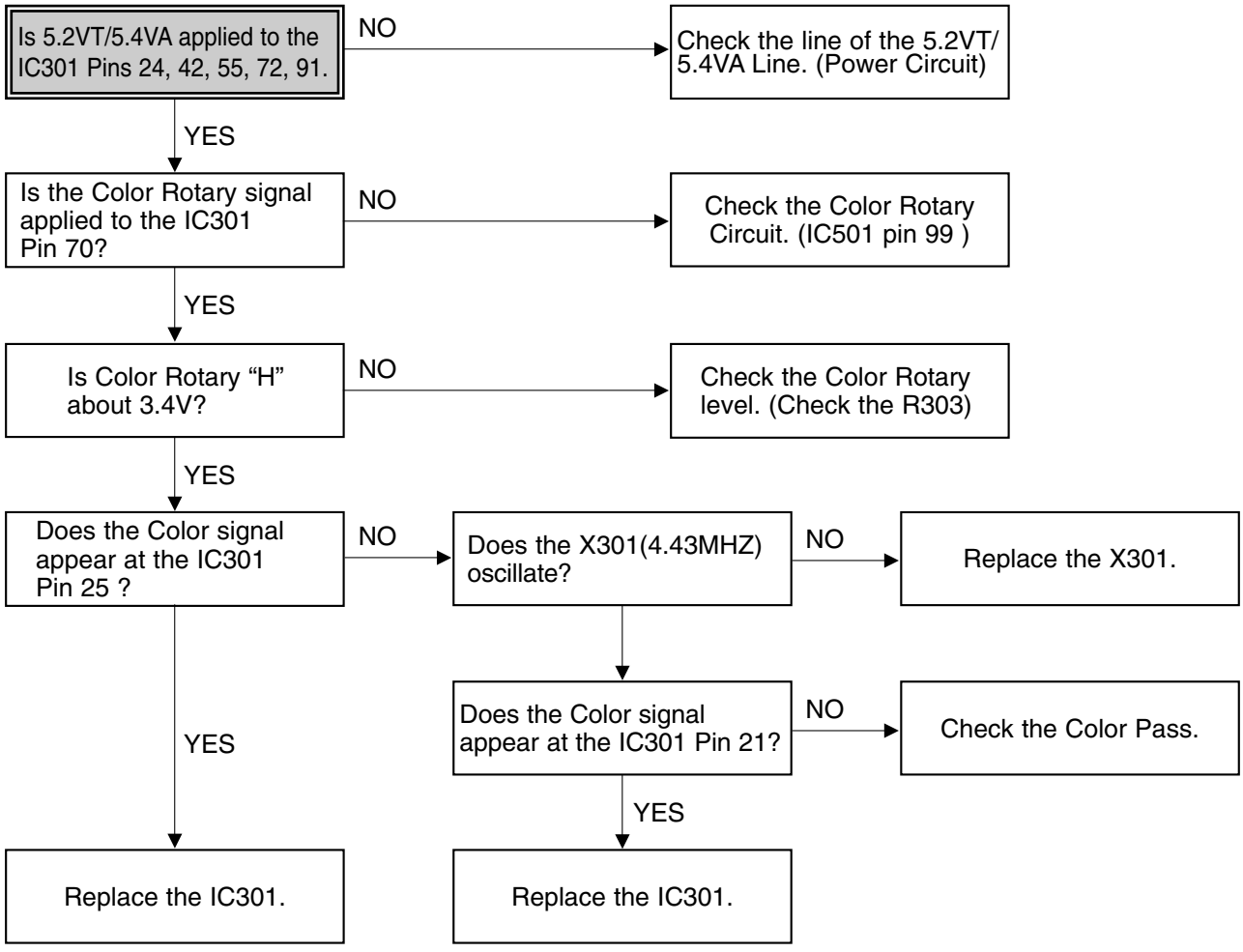
(1) No Video in EE Mode,


No Video in EE Mode
Does the Video signal appear at the IC301 Pin 48?
NO
Check the Video Input Jack. (Line In Jack)
YES
Is 5V applied to the IC301 Pins 18, 24, 42, 55, 72, 91?
NO
Check the 5.2VT, 5.4VA Line. (Power Circuit)
YES
Does the Video signal appear at the IC301 Pin 65?
NO
Is I²C BUS signal applied to the IC301 Pins 68, 69?
NO
Check the System Circuit. (Refer to 'SYSTEM I²C BUS CHECK Trouble Shooting')
YES
YES
Does the Video signal appear at the IC501 Pin 19?
NO
Chck the path of the signal between the IC301 Pin 5 and IC501 Pin 17.
Check C316. (AGC)
YES
YES
Does the Video signal appear at the Emitter terminal of the Q307, Q308?
NO
Does the 12VT, 5.4VA appear at the Emitter terminal of the Q307, Q308.
NO
Replace the IC301.
YES
Replace the Q307, Q308.
Check the 12VT, 5.4VA Line. (Power Circuit)

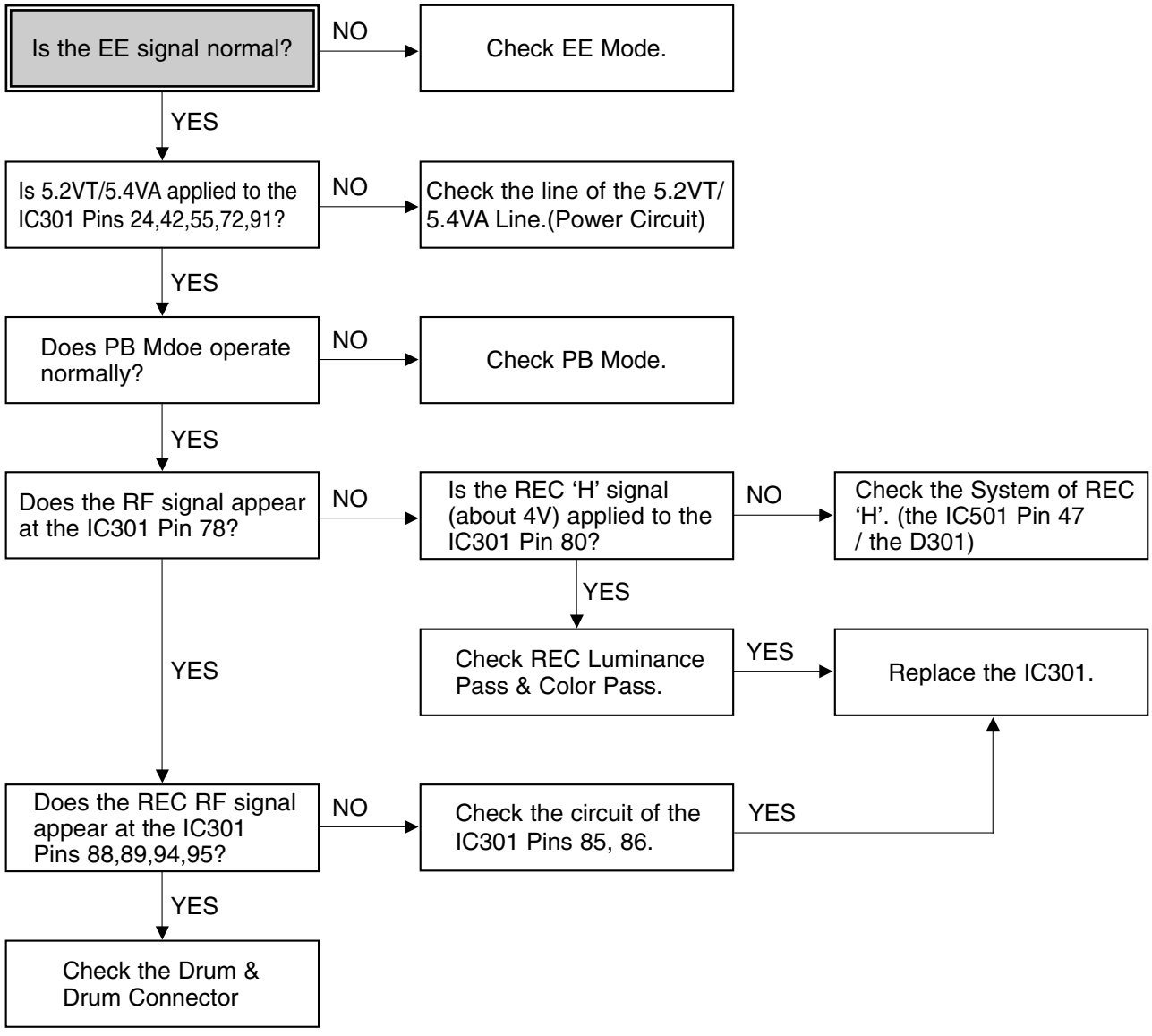
(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,


Is 5.2VT, 5.4VA applied to the IC301 Pins 24, 42, 55, 72, 91?
NO
Check the line of the 5.2V Line. (Power Circuit)
YES
Is the I²C Bus siganl applied to the IC301 Pins 68, 69 ?
NO
Refer to 'SYSTEM I²C BUS CHECK Trouble Shooting'.
YES
Does the normal RF signal appear at the IC301 Pin 78?
NO
Is the V.H.S/W signal applied to the IC301 Pin 70?
NO
Check the System Circuit. (IC501 Pin 105)
YES
Is V.H.S/W "H" about 3.4V at the IC301 Pin 70?
NO
Check the V.H.S/W level. (Check R303, R304)
YES
YES
Clean the Drum.
NO
Replace the IC301.
Does the Y(Luminance) RF signal appear at the IC301 Pin 76?
NO
Check the path of the Y(Luminance) RF signal. (Check the C312)
YES
YES
Is the Y(Luminance) Video waveform showed up at theIC301 Pin 43?
NO
Check the path of the Y(Luminance) RF signal. (Check C327)
YES
YES
Replace the IC301.

(3) When the C(Color) signal doesn't appear on the screen in PB Mode,

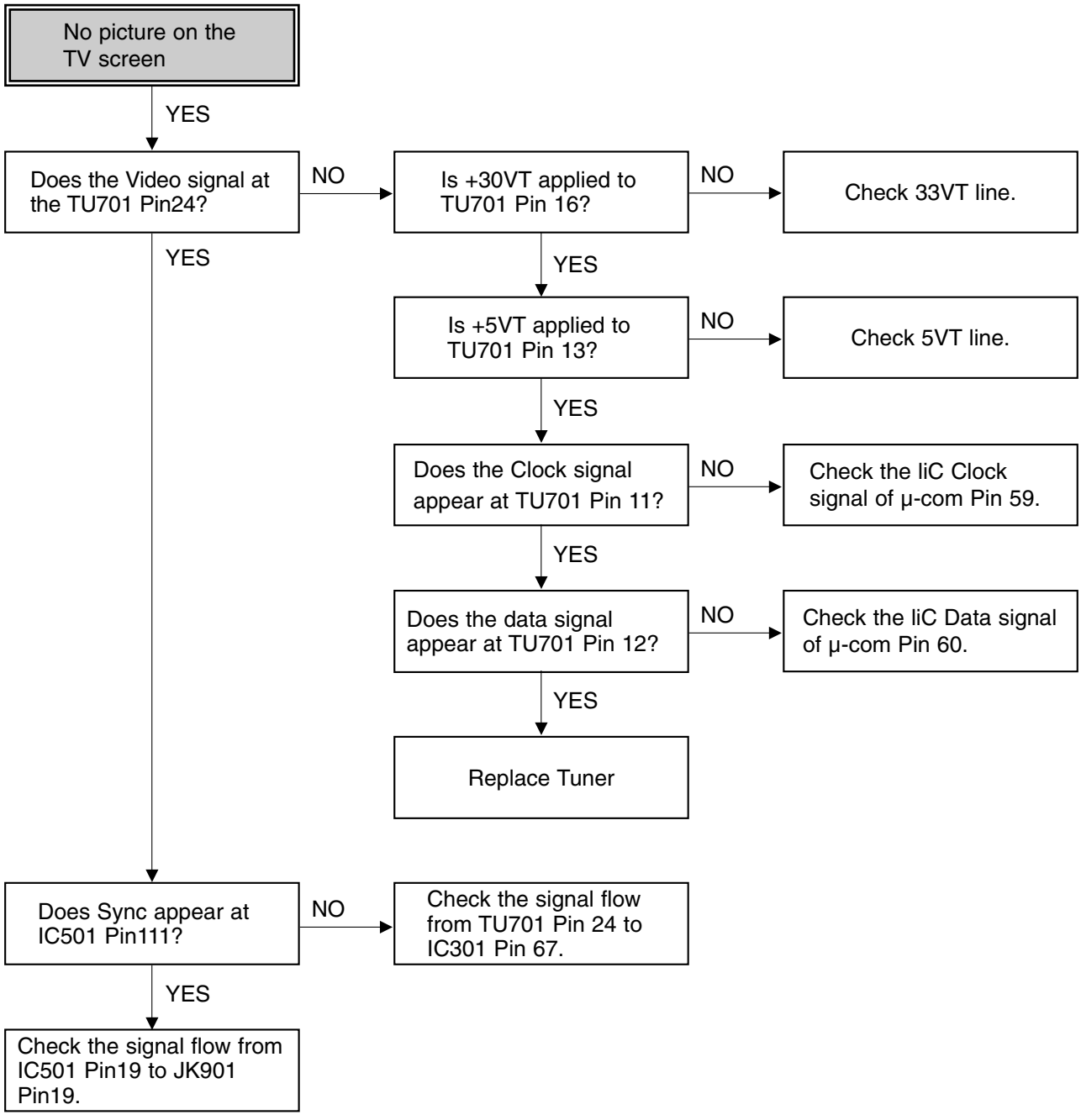

Is 5.2VT/5.4VA applied to the IC301 Pins 24, 42, 55, 72, 91.
NO
Check the line of the 5.2VT/ 5.4VA Line. (Power Circuit)
YES
Is the Color Rotary signal applied to the IC301 Pin 70?
NO
Check the Color Rotary Circuit. (IC501 pin 99)
YES
Is Color Rotary "H" about 3.4V?
NO
Check the Color Rotary level. (Check the R303)
YES
Does the Color signal appear at the IC301 Pin 25 ?
NO
Does the X301(4.43MHZ) oscillate?
NO
Replace the X301.
YES
Does the Color signal appear at the IC301 Pin 21?
NO
Check the Color Pass.
YES
Replace the IC301.
Replace the IC301.

(4) When the Video signal doesn't appear on the screen in REC Mode,

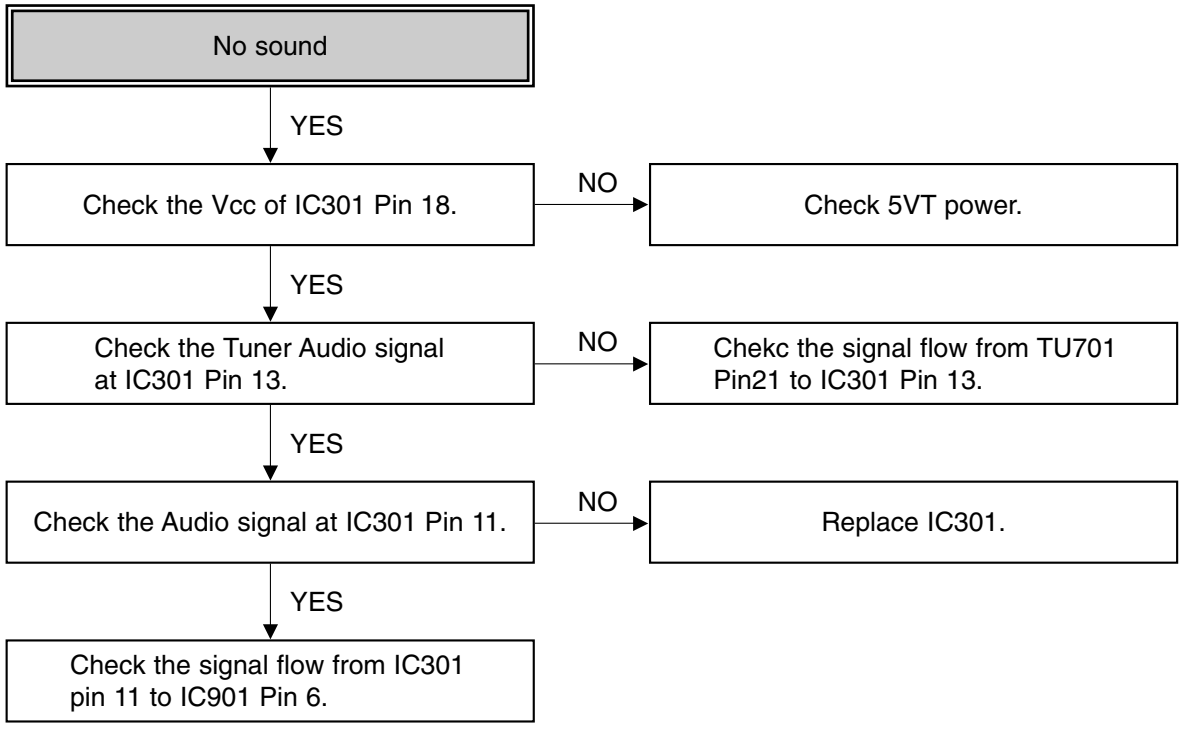

Is the EE signal normal?
NO
Check EE Mode.
YES
Is 5.2VT/5.4VA applied to the IC301 Pins 24,42,55,72,91?
NO
Check the line of the 5.2VT/ 5.4VA Line.(Power Circuit)
YES
Does PB Mdoe operate normally?
NO
Check PB Mode.
YES
Does the RF signal appear at the IC301 Pin 78?
NO
Is the REC 'H' signal (about 4V) applied to the IC301 Pin 80?
NO
Check the System of REC 'H'. (the IC501 Pin 47 / the D301)
YES
YES
Check REC Luminance Pass & Color Pass.
YES
Replace the IC301.
Does the REC RF signal appear at the IC301 Pins 88,89,94,95?
NO
Check the circuit of the IC301 Pins 85, 86.
YES
YES
Check the Drum & Drum Connector

5. Tuner/IF circuit

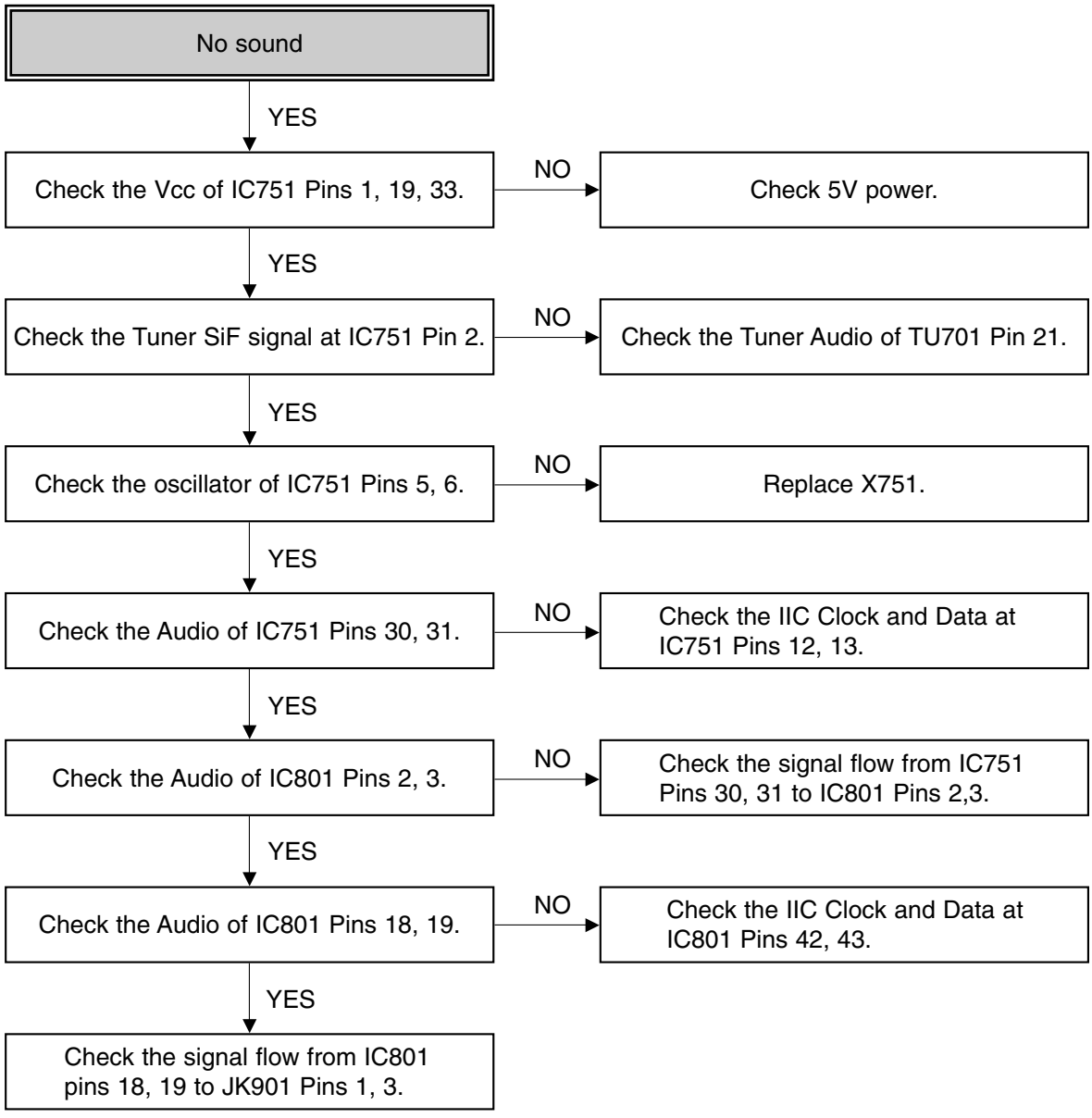
(1) No picture on the TV screen


No picture on the TV screen
YES
Does the Video signal at the TU701 Pin24?
NO
Is +30VT applied to TU701 Pin 16?
NO
Check 33VT line.
YES
YES
Is +5VT applied to TU701 Pin 13?
NO
Check 5VT line.
YES
Does the Clock signal appear at TU701 Pin 11?
NO
Check the liC Clock signal of µ-com Pin 59.
YES
Does the data signal appear at TU701 Pin 12?
NO
Check the liC Data signal of µ-com Pin 60.
YES
Replace Tuner
Does Sync appear at IC501 Pin111?
NO
Check the signal flow from TU701 Pin 24 to IC301 Pin 67.
YES
Check the signal flow from IC501 Pin19 to JK901 Pin19.

(2) No sound (Mono Model)

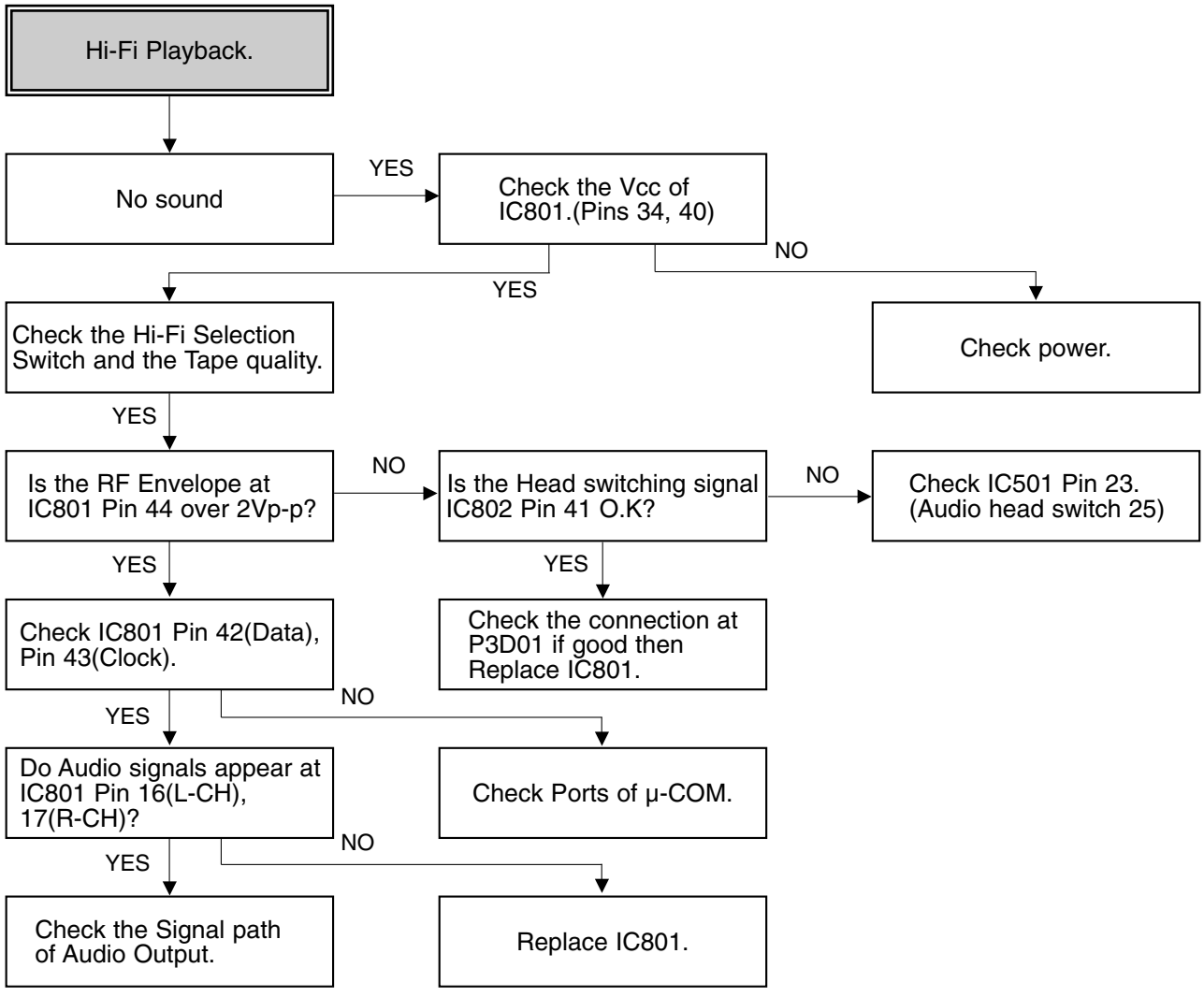

No sound
YES
Check the Vcc of IC301 Pin 18.
NO
Check 5VT power.
YES
Check the Tuner Audio signal at IC301 Pin 13.
NO
Chekc the signal flow from TU701 Pin21 to IC301 Pin 13.
YES
Check the Audio signal at IC301 Pin 11.
NO
Replace IC301.
YES
Check the signal flow from IC301 pin 11 to IC901 Pin 6.

(3) No sound (Hi-Fi Model)

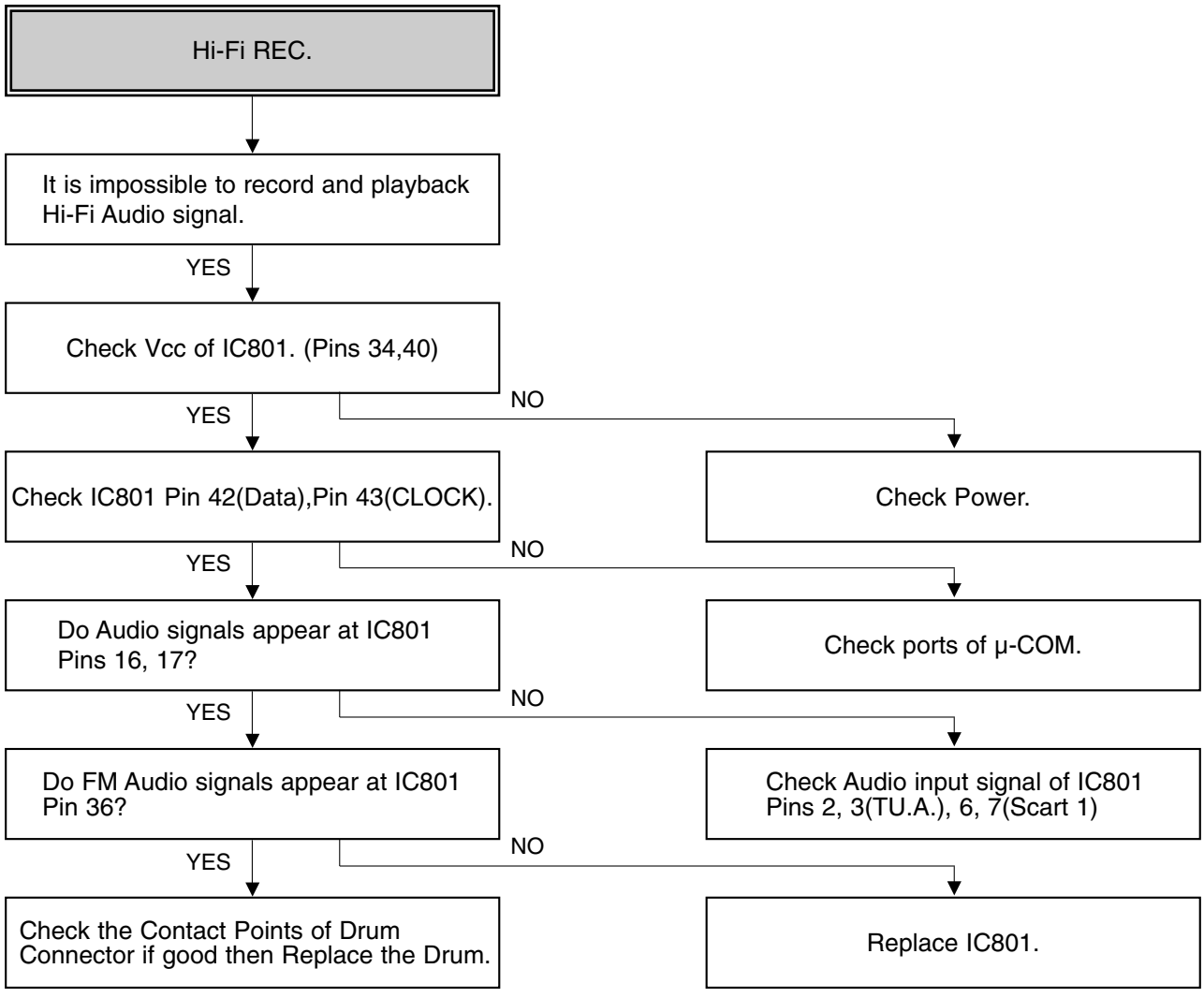

No sound
YES
Check the Vcc of IC751 Pins 1, 19, 33.
NO
Check 5V power.
YES
Check the Tuner SiF signal at IC751 Pin 2.
NO
Check the Tuner Audio of TU701 Pin 21.
YES
Check the oscillator of IC751 Pins 5, 6.
NO
Replace X751.
YES
Check the Audio of IC751 Pins 30, 31.
NO
Check the IIC Clock and Data at IC751 Pins 12, 13.
YES
Check the Audio of IC801 Pins 2, 3.
NO
Check the signal flow from IC751 Pins 30, 31 to IC801 Pins 2,3.
YES
Check the Audio of IC801 Pins 18, 19.
NO
Check the IIC Clock and Data at IC801 Pins 42, 43.
YES
Check the signal flow from IC801 pins 18, 19 to JK901 Pins 1, 3.

6. Hi-Fi Circuit (Hi-Fi Model)

A.

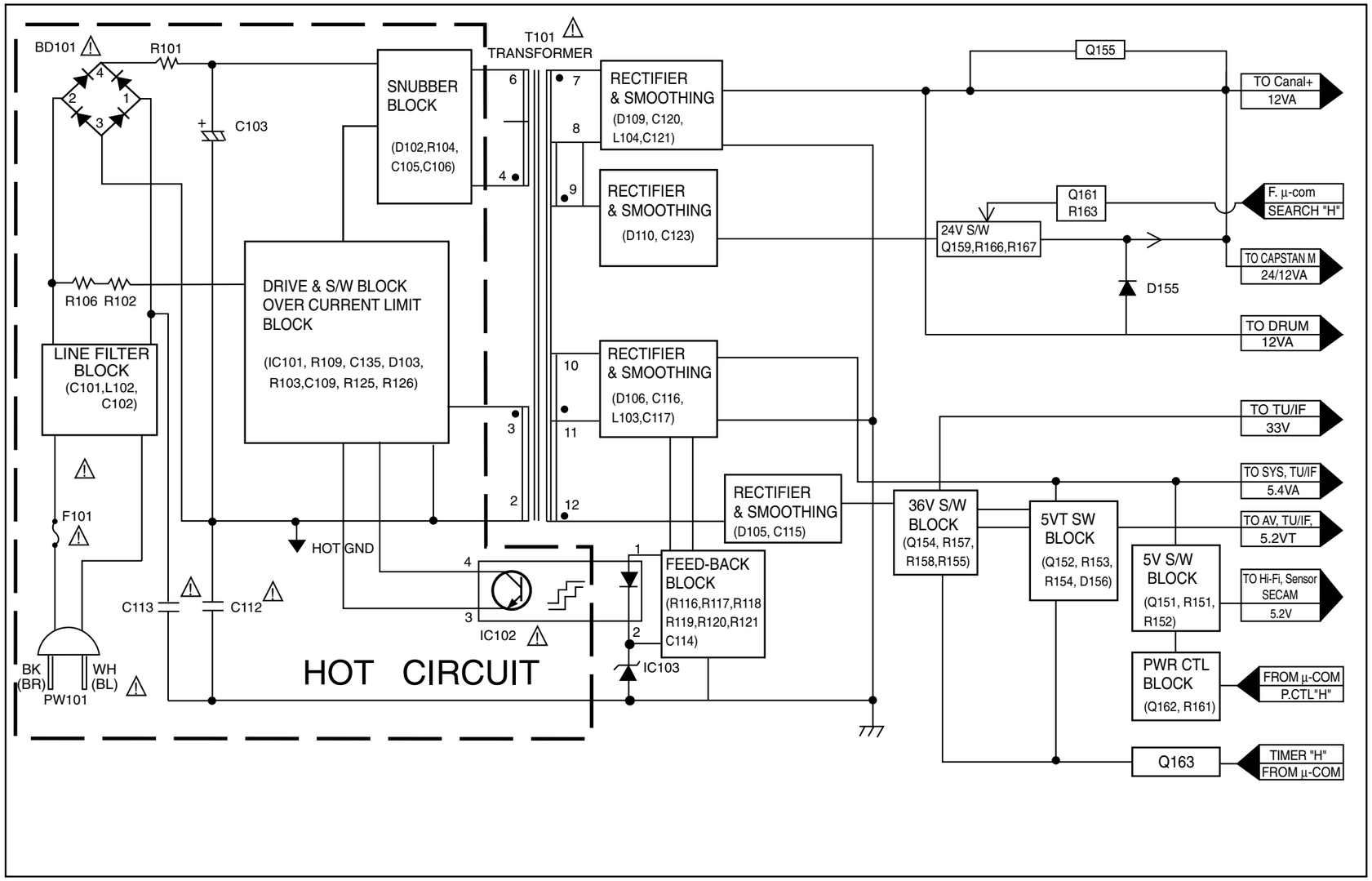


B.


Hi-Fi REC.
It is impossible to record and playback Hi-Fi Audio signal.
YES
Check Vcc of IC801. (Pins 34,40)
NO
YES
Check Power.
Check IC801 Pin 42(Data),Pin 43(CLOCK).
NO
YES
Check ports of µ-COM.
Do Audio signals appear at IC801 Pins 16, 17?
NO
YES
Check Audio input signal of IC801 Pins 2, 3(TU.A.), 6, 7(Scart 1)
Do FM Audio signals appear at IC801 Pin 36?
NO
YES
Replace IC801.
Check the Contact Points of Drum Connector if good then Replace the Drum.

BLOCK DIAGRAMS

1. Power Block Diagram

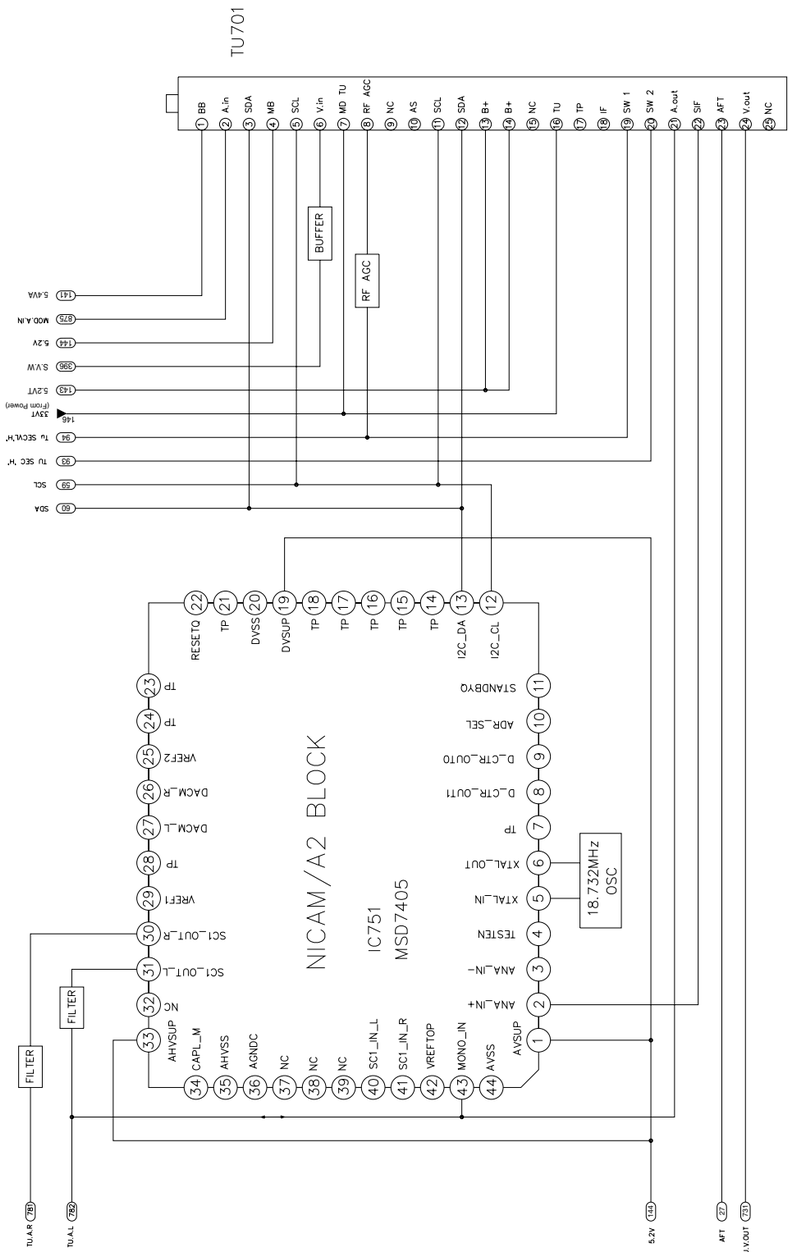


'00 11. 30

NOTES : Symbol denotes AC ground.

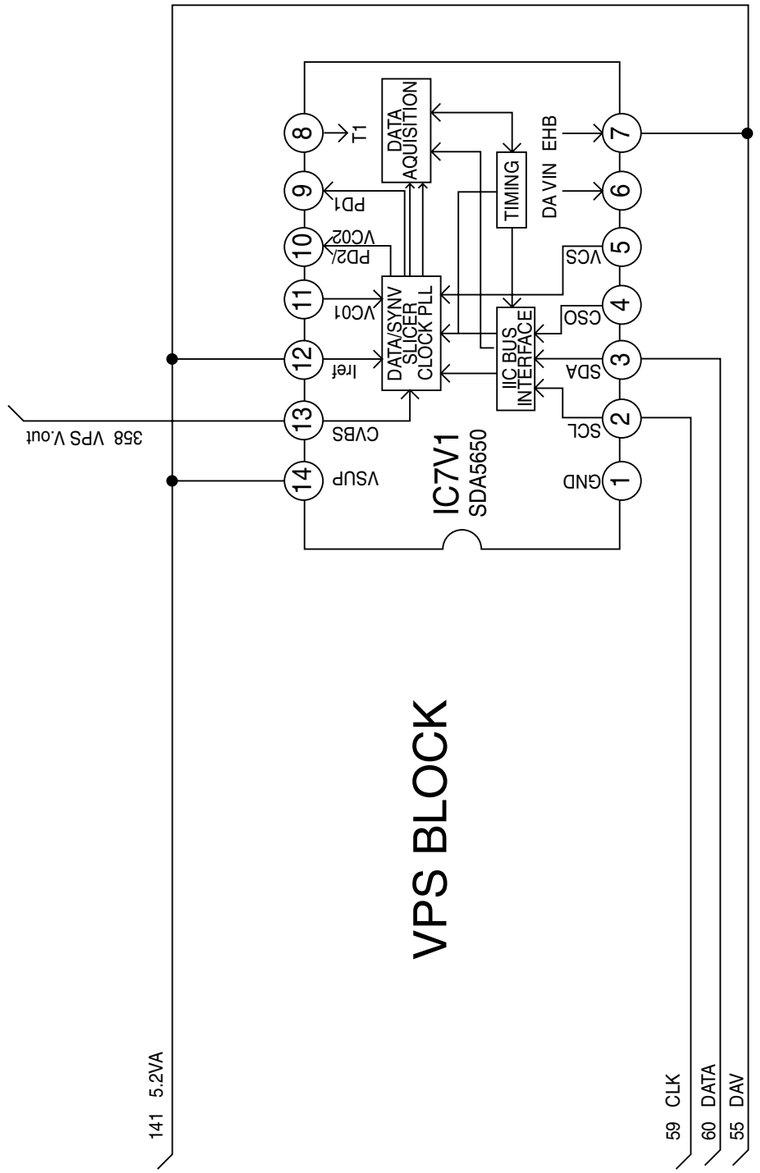
Symbol denotes DC chassis ground.

2. Tu/IF, NICAM & A2 Block Diagram



'99 12.8 R10488BA
BC999NS/BD289Y

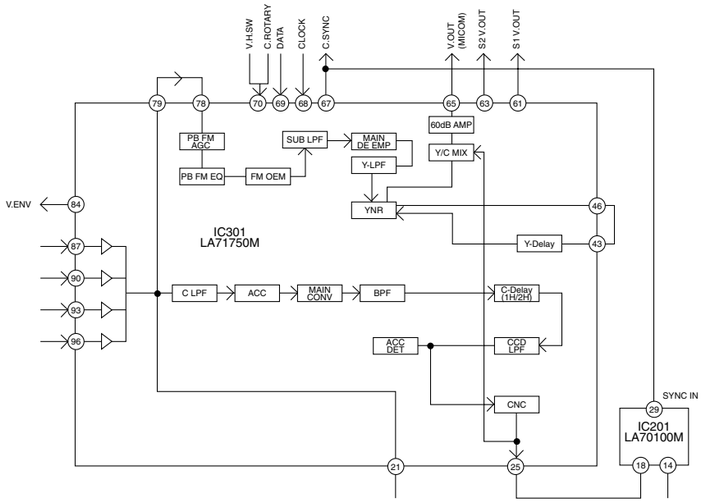
3. VPS Block Diagram



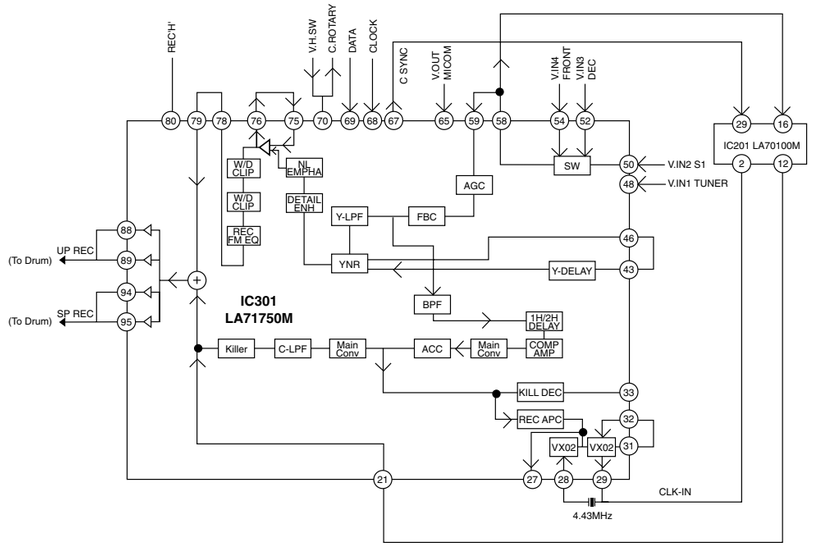
VPS BLOCK

4. Y/C Block Diagram

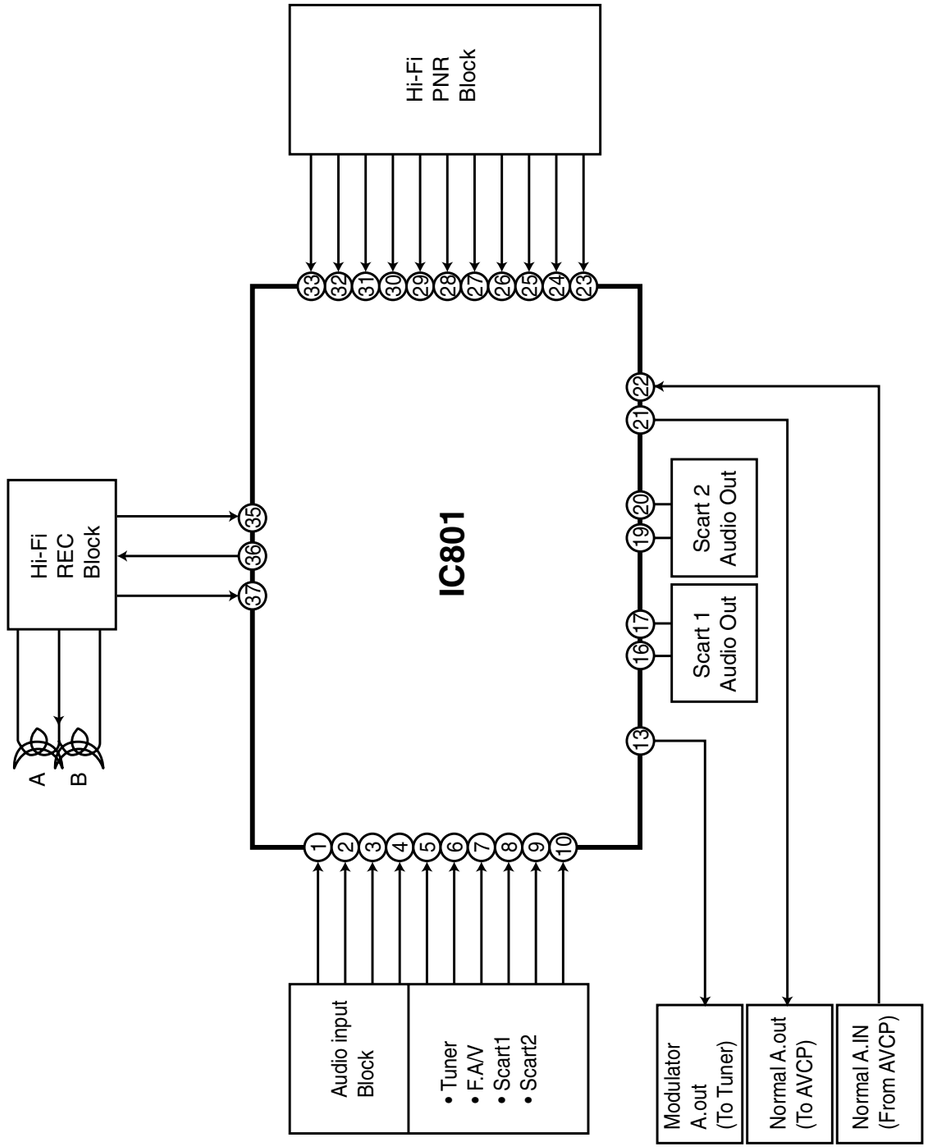
(PB MODE)



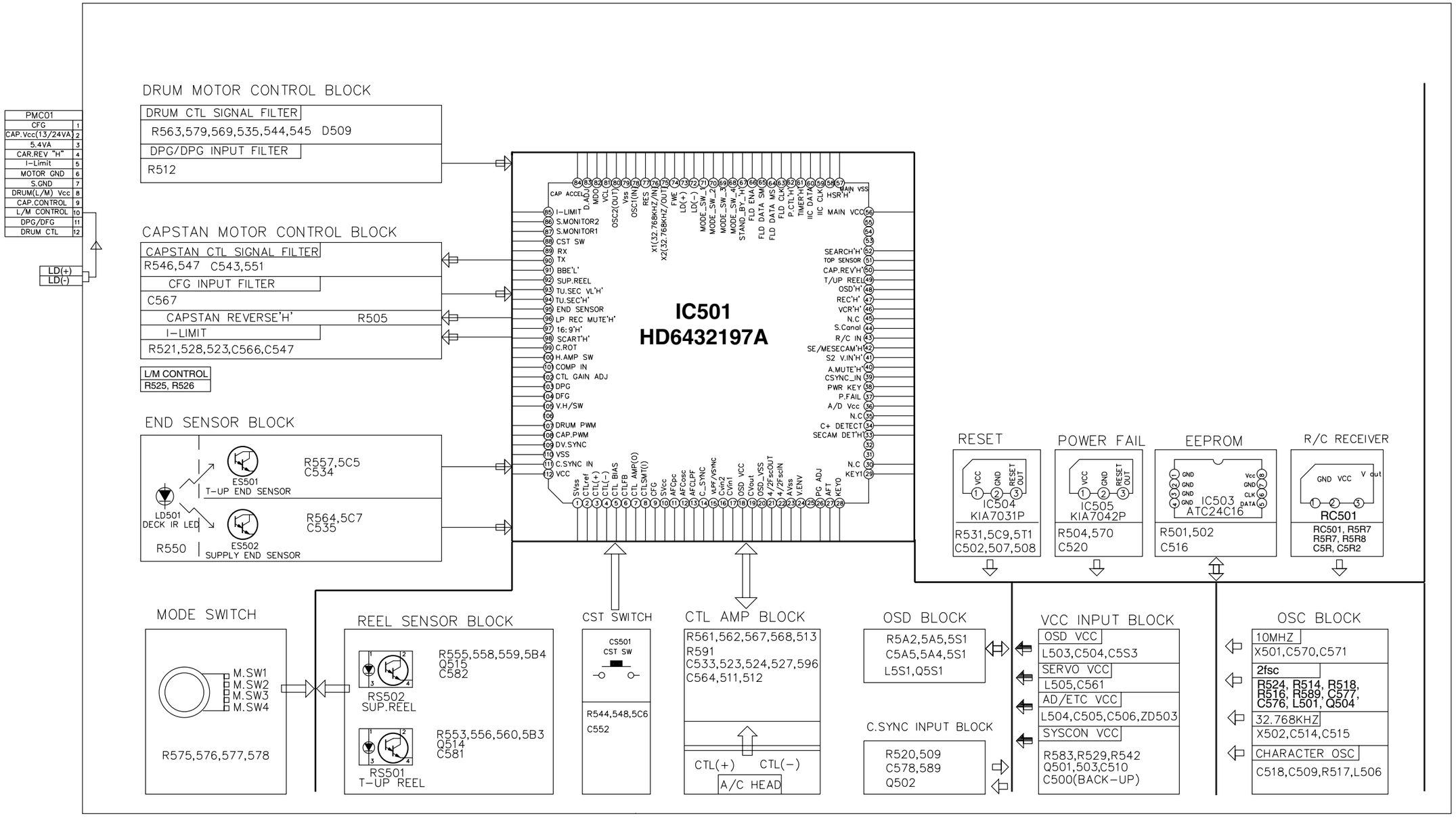
(REC MODE)



5. Hi-Fi Block Diagram(Hi-Fi Model Only)

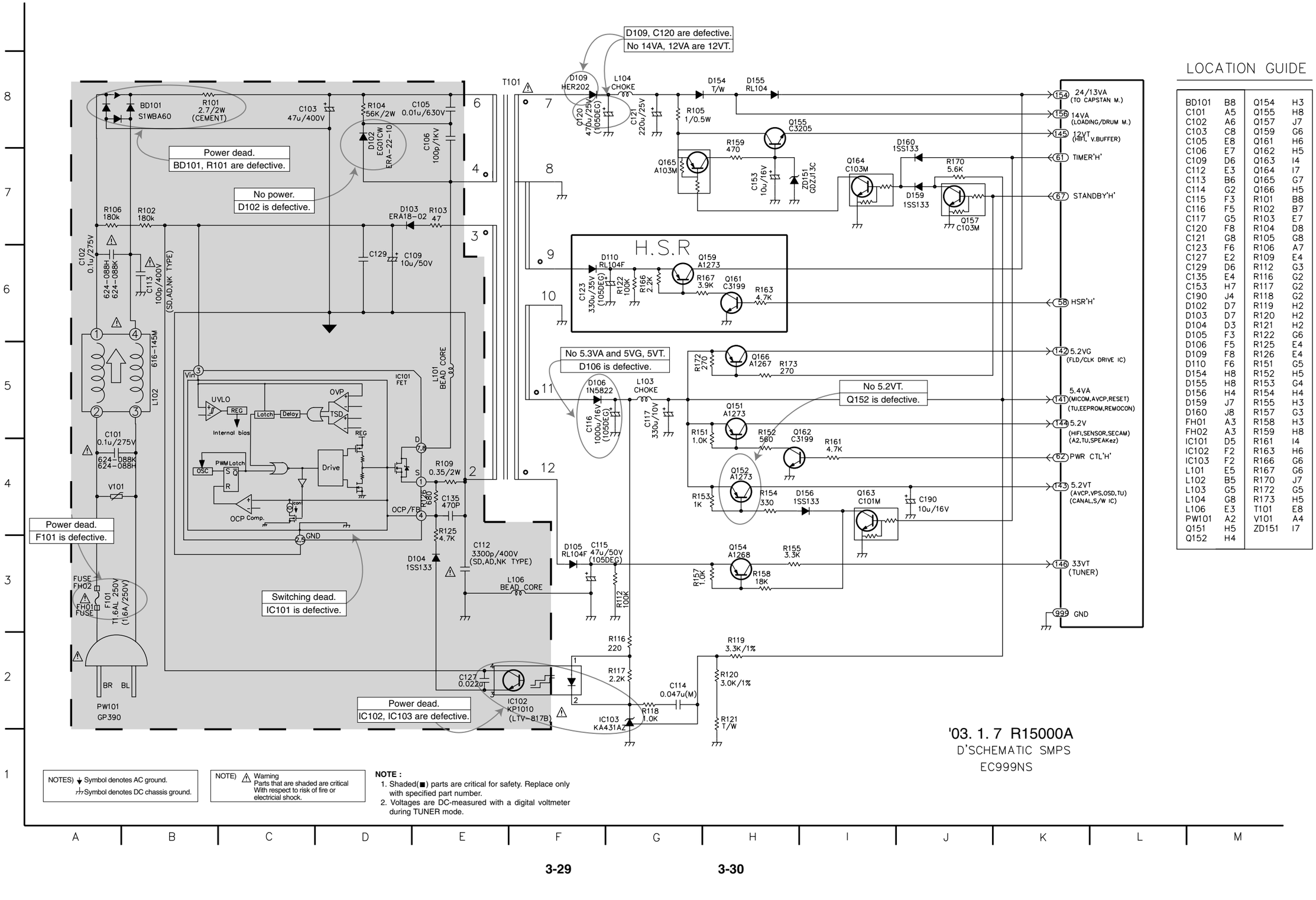


6. System Block Diagram



CIRCUIT DIAGRAMS

1. Power Circuit Diagram



LOCATION GUIDE

BD101	B8	Q154	H3
C101	A5	Q155	H8
C102	A6	Q157	J7
C103	C8	Q159	G6
C105	E8	Q161	H6
C106	E7	Q162	H5
C109	D6	Q163	I4
C112	E3	Q164	I7
C113	B6	Q165	G7
C114	G2	Q166	H5
C115	F3	R101	B8
C116	F5	R102	B7
C117	G5	R103	E7
C120	F8	R104	D8
C121	G8	R105	G8
C123	F6	R106	A7
C127	E2	R109	E4
C129	D6	R112	G3
C135	E4	R116	G2
C153	H7	R117	G2
C190	J4	R118	G2
D102	D7	R119	H2
D103	D7	R120	H2
D104	D3	R121	H2
D105	F3	R122	G6
D106	F5	R125	E4
D109	F8	R126	E4
D110	F6	R151	G5
D154	H8	R152	H5
D155	H8	R153	G4
D156	H4	R154	H4
D159	J7	R155	H3
D160	J8	R157	G3
FH01	A3	R158	H3
FH02	A3	R159	H8
IC101	D5	R161	I4
IC102	F2	R163	H6
IC103	F2	R166	G6
L101	E5	R167	G6
L102	B5	R170	J7
L103	G5	R172	G5
L104	G8	R173	H5
L106	E3	T101	E8
PW101	A2	V101	A4
Q151	H5	ZD151	I7
Q152	H4		

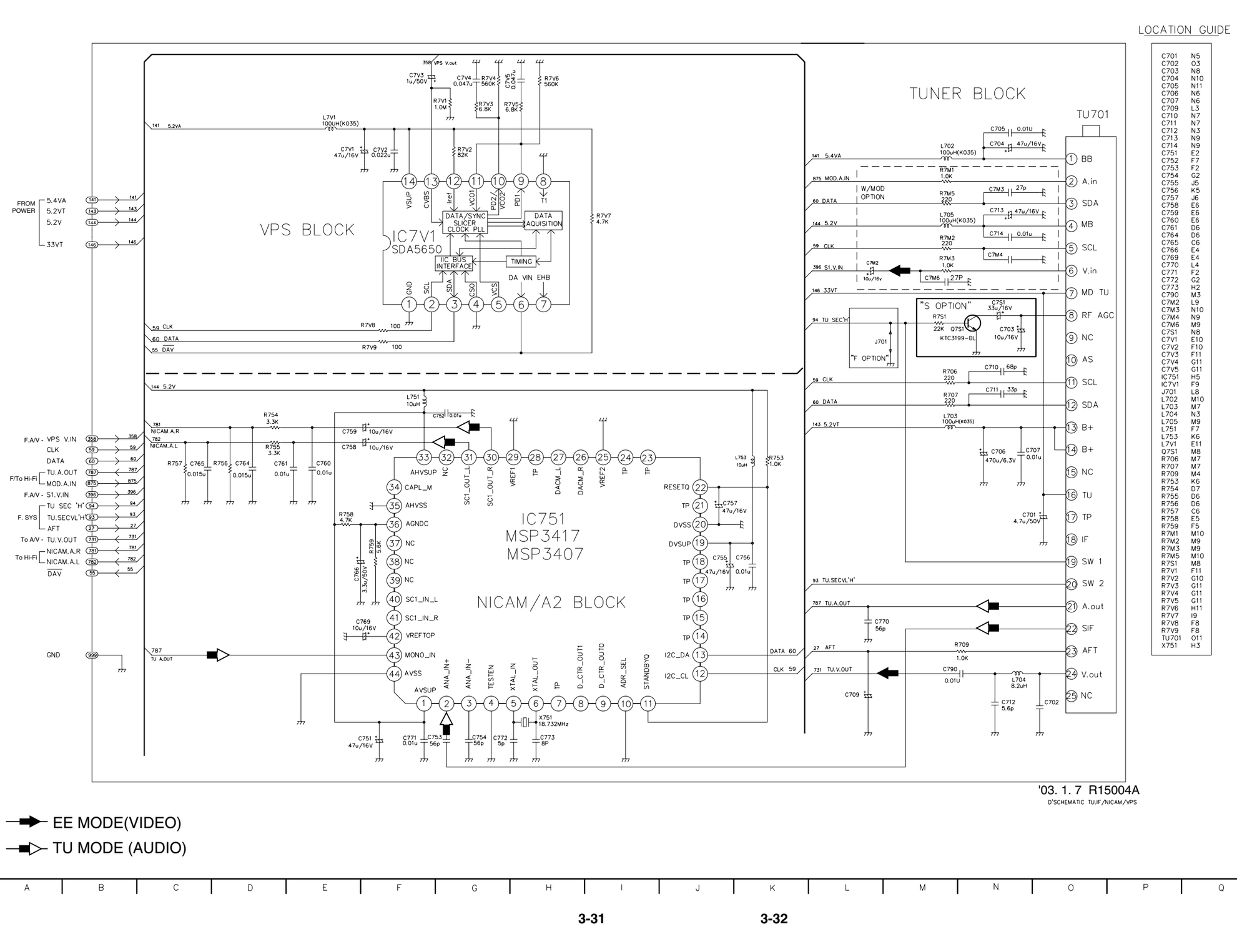
'03. 1. 7 R15000A
D'SCHEMATIC SMPS
EC999NS

NOTES) ⏚ Symbol denotes AC ground.
⏚ Symbol denotes DC chassis ground.

NOTE) ⚠ Warning
Parts that are shaded are critical With respect to risk of fire or electricial shock.

NOTE :
1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during TUNER mode.

2. Tuner, NICAM Circuit Diagram



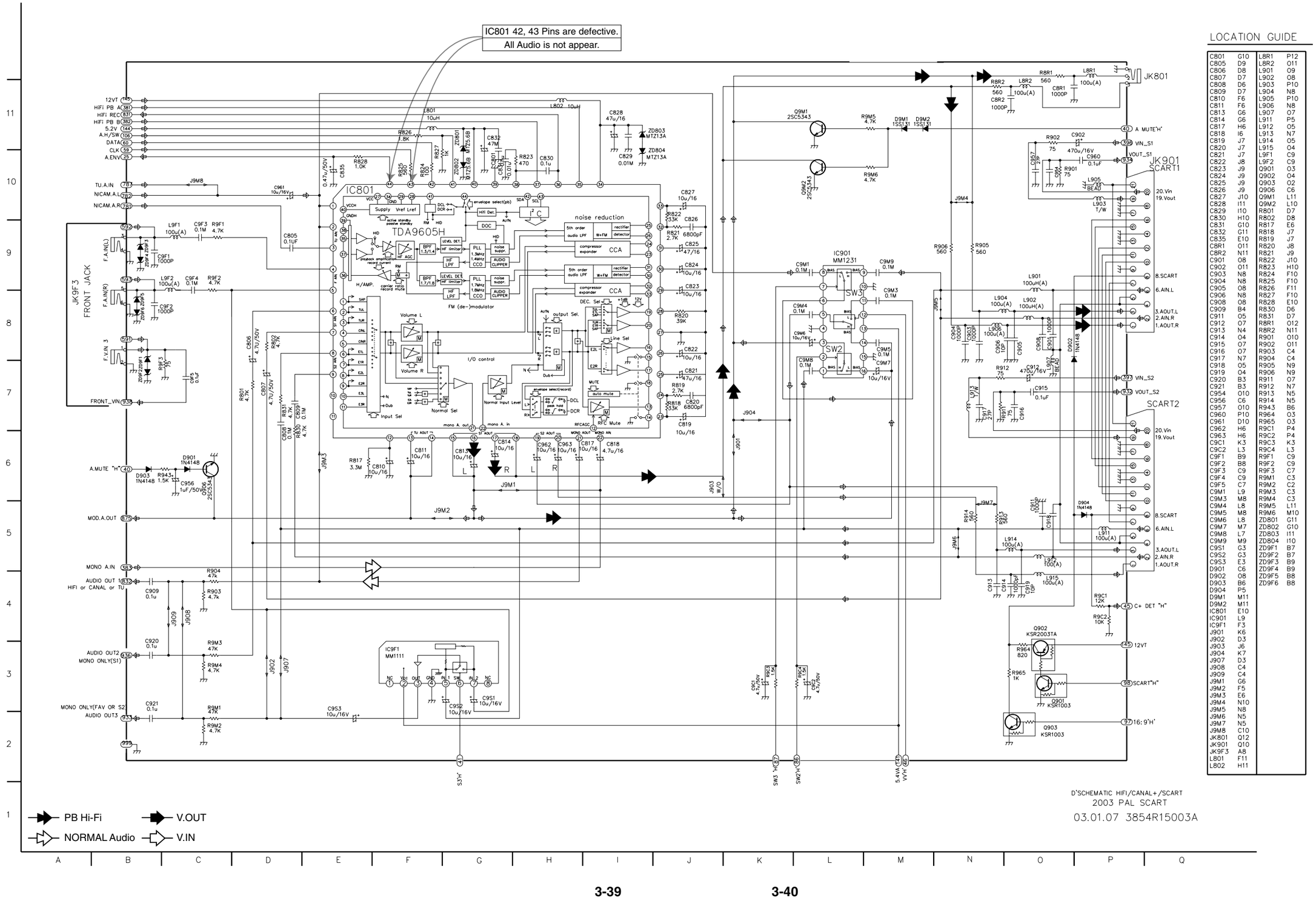
LOCATION GUIDE

C701	N5
C702	O3
C703	N8
C704	N10
C705	N11
C706	N6
C707	N6
C709	L3
C710	N7
C711	N7
C712	N3
C713	N9
C714	N9
C751	E2
C752	F7
C753	F2
C754	G2
C755	J5
C756	K5
C757	J6
C758	E6
C759	E6
C760	E6
C761	D6
C764	D6
C765	C6
C766	E4
C769	E4
C770	L4
C771	F2
C772	G2
C773	H2
C790	M3
C7M2	L9
C7M3	N10
C7M4	N9
C7M6	M9
C7S1	N8
C7V1	E10
C7V2	F10
C7V3	F11
C7V4	G11
C7V5	G11
IC751	H5
IC7V1	F9
J701	L8
L702	M10
L703	M7
L704	N3
L705	M9
L751	F7
L753	K6
L7V1	E11
Q751	M8
R706	M7
R707	M7
R709	M4
R753	K6
R754	D7
R755	D6
R756	D6
R757	C6
R758	E5
R759	F5
R7M1	M10
R7M2	M9
R7M3	M9
R7M5	M10
R7S1	M8
R7V1	F11
R7V2	G10
R7V3	G11
R7V4	G11
R7V5	G11
R7V6	H11
R7V7	I9
R7V8	F8
R7V9	F8
TU701	O11
X751	H3

'03. 1. 7 R15004A

D'SCHEMATIC TU.IF/NICAM/VPS

5. Hi-Fi, SCART Circuit Diagram



D'SCHEMATIC HIFI/CANAL+/SCART
2003 PAL SCART
03.01.07 3854R15003A

LOCATION GUIDE

C801	G10	L8R1	P12
C805	D9	L8R2	O11
C806	D8	L901	O9
C807	D7	L902	O8
C808	D6	L903	P10
C809	D7	L904	N8
C810	F6	L905	P10
C811	F6	L906	N8
C813	G6	L907	O7
C814	G6	L911	P5
C817	H6	L912	O5
C818	I6	L913	N7
C819	J7	L914	O5
C820	J7	L915	O4
C821	J7	L9F1	C9
C822	J8	L9F2	C9
C823	J9	Q901	O3
C824	J9	Q902	O4
C825	J9	Q903	O2
C826	J9	Q906	C6
C827	J10	Q9M1	L11
C828	I11	Q9M2	L10
C829	I10	R801	D7
C830	H10	R802	D8
C831	G10	R817	E6
C832	G11	R818	J7
C835	E10	R819	J7
C881	O11	R820	J8
C8R2	N11	R821	J9
C901	O8	R822	J10
C902	O11	R823	H10
C903	N8	R824	F10
C904	N8	R825	F10
C905	O8	R826	F11
C906	N8	R827	F10
C908	O8	R828	E10
C909	B4	R830	D6
C911	O5	R831	D7
C912	O7	R8R1	O12
C913	N4	R8R2	N11
C914	O4	R901	O10
C915	O7	R902	O11
C916	O7	R903	C4
C917	N7	R904	C4
C918	O5	R905	N9
C919	O4	R906	N9
C920	B3	R911	O7
C921	B3	R912	N7
C954	O10	R913	N5
C956	C6	R914	N5
C957	O10	R943	B6
C960	P10	R964	O3
C961	D10	R965	O3
C962	H6	R9C1	P4
C963	H6	R9C2	P4
C9C1	K3	R9C3	K3
C9C2	L3	R9C4	L3
C9F1	B9	R9F1	C9
C9F2	B8	R9F2	C9
C9F3	C9	R9F3	C7
C9F4	C9	R9M1	C3
C9F5	C7	R9M2	C2
C9M1	L9	R9M3	C3
C9M3	M8	R9M4	C3
C9M4	L8	R9M5	L11
C9M5	M8	R9M6	M10
C9M6	L8	ZD801	G11
C9M7	M7	ZD802	G10
C9M8	L7	ZD803	I11
C9M9	M9	ZD804	I10
C9S1	G3	ZD9F1	B7
C9S2	G3	ZD9F2	B7
C9S3	E3	ZD9F3	B9
D901	C6	ZD9F4	B9
D902	O8	ZD9F5	B8
D903	B6	ZD9F6	B8
D904	P5		
D9M1	M11		
D9M2	M11		
IC801	E10		
IC901	L9		
IC9F1	F3		
J901	K6		
J902	D3		
J903	J6		
J904	K7		
J907	D3		
J908	C4		
J909	C4		
J9M1	G6		
J9M2	F5		
J9M3	E6		
J9M4	N10		
J9M5	N8		
J9M6	N5		
J9M7	N5		
J9M8	C10		
JK801	O12		
JK901	Q10		
JK9F3	A8		
L801	F11		
L802	H11		

• CIRCUIT VOLTAGE CHART

MODE / PIN NO.	EE	PB	REC
IC103			
R	2.45	2.45	2.44
A	-0.03	-0.03	0
K	4.05	4.06	4.07
IC201			
1	2.52	2.52	2.52
2	2.4	2.41	2.41
3	0	3.35	3.37
4	0	2.59	0
5	0	0	0
6	2.8	3.72	0
7	0	0	0
8	0	0	0
9	3.04	3.02	3.04
10	2.53	2.51	0
11	2.1	2.08	2.19
12	3.32	1.96	3.25
13	4.01	4.01	4.01
14	2.55	2.54	2.56
15	3.06	1.94	3.06
16	6.2	3.2	3.22
17	2.34	4.25	0.22
18	0.13	3.44	0.13
19	2.23	2.21	2.22
20	2.08	2.22	2.06
21	2.27	2.4	2.28
22	1.42	1.43	0
23	5.05	5.02	5.06
24	5.05	5.02	5.06
25	2.31	2.07	2.37
26	2.3	2.02	2.38
27	2.09	2.08	2.11
28	0.18	0.19	0.18
29	0.48	0.26	0.41
30	2.08	2.07	2.11
IC401			
1	0	0.01	0
2	5.21	5.2	5.21
3	2.19	2.2	2.19
4	0	0	0
5	2.91	2.91	2.91
6	0	0	0
7	2.92	2.92	2.92
8	0	0	0
IC402			
1	0	0	0
2	2.86	2.86	2.85
3	5.15	5.16	0
4	5.29	5.29	5.29
5	4.94	4.94	4.94
6	5.29	5.29	5.29
7	5.29	5.2	5.29
8	2.57	2.57	2.57
9	0	0	0
10	5.29	5.29	5.29

MODE / PIN NO.	EE	PB	REC
11	2.41	2.41	2.42
12	2.1	2.1	2.08
13	0	5..29	5.29
14	5.26	5.26	5.25
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
IC301			
1	5.15	5.14	1.7
2	0.02	0.03	0.75
3	2.29	2.29	0
4		1.46	0.5
5	2.28	2.26	2.47
6	2.29	2.28	2.29
7	2.28	2.28	2.27
8	2.27	2.27	2.27
9	2.26	2.26	3.05
10	2.29	2.29	2.28
11	2.37	2.39	2.28
12	0	0.02	0.11
13	2.26	2.3	2.28
14		0.02	
15	2.26	2.26	2.29
16	5.17	0.16	5.05
17	2.26	2.26	2.27
18	5.17	5.17	5.14
19	4.24	4.25	3.07
20	0	0	0
21	3.36	1.96	3.25
22	3.07	3.06	3.06
23	3.06	3.03	3.05
24	5.16	5.16	5.13
25	0.13	3.44	5.13
26	1.44	1.82	0
27	2.07	2.1	1.42
28	4.23	4.21	4.18
29	2.83	2.83	2.9
30	0	0	0
31	4.7	4.7	4.69
32	4.7	4.7	4.69
33	2.85	2.06	2.07
34	0.33	0.31	0.31
35	2.17	2.16	2.16
36	3.35	3.35	3.35
37	2.09	2.11	2.09
38	1.99	2.03	2.02
39	9.45	9.43	9.39
40	0	0	0
41	0	0	0
42	5.17	5.16	5.14
43	2.4	2.42	2.39
44	2.34	4.42	0.08
45	2.33	2.46	2.46
46	2.69	2.67	2.68

MODE / PIN NO.	EE	PB	REC
47	4.17	4.17	4.17
48	2.35	2.37	2.33
49	3.18	3.18	3.18
50	1.97	1.97	1.97
51	0	0	0
52	1.97	1.97	1.97
53	2.34	2.35	2.35
54	1.97	1.99	1.99
55	5.24	5.24	5.24
56	2.25	2.31	2.29
57	2.02	2.14	1.99
58	2.37		2.4
59	2.94	2.95	2.93
60	1.42	1.55	1.38
61	1.72	1.85	2.05
62	0.09	0.11	0.11
63	1.75	1.84	
64	0	0	0.
65	1.85	1.85	1.81
66	0	0	0
67	0.	0.44	0.4
68	4.79	4.91	4.81
69	4.75	4.81	4.79
70	5.27	2.69	2.69
71	0.01	0	0.01
72	5.13	5.11	5.09
73		1.98	2.21
74	2.55	2.63	2.53
75	2.46	2.63	2.45
76	2.47	0.77	2.45
77	1.59	1.59	1.49
78	2.7	3.39	2.69
79	2.02	1.91	2.52
80	1.06	1.06	4.72
81	1.11	1.12	1.11
82	0	0	0
83	5.13	1.47	1.51
84	0.46	2.43	1.75
85	0	0	1.36
86		0	2.03
87	0	0.72	0.7
88	0.71	0.72	0.7
89	0.71	0.72	0.7
90	0.71	0.72	0.7
91	5.17	5.16	5.11
92	0	0	0
93	1.95	1.93	0.73
94	1.95	1.93	0.72
95	1.95	1.93	0.72
96	1.95	1.93	4.33
97	0	0	0
98	2.29	2.29	2.4
99	0	2.29	2.4
100	2.29	2.29	2.53

MODE / PIN NO.	EE	PB	REC
IC501			
1	0	0	0
2	2.39	2.57	2.57
3	2.57	2.57	3.04
4	2.57	2.57	2.1
5	2.57	2.57	2.57
6	2.56	2.57	2.57
7	2.58	2.59	2.58
8	2.55	2.55	2.55
9	4.62	2.31	2.31
10	4.85	5.16	5.016
11	1.89	1.91	1.9
12	1.89	1.9	1.89
13	2.61	2.5	2.49
14	0.4	0.4	0.4
15	0.08	0.1	0.56
16	1.99	1.91	1.98
17	2.39	2.34	2.31
18	5.14	5.14	5.11
19	2.41	2.37	2.33
20	0	0	0
21	2.47	2.47	0
22	2.46	2.46	0
23	0	0	0
24	0.51	2.47	0.01
25	2.81	2.88	2.8
26	5.27	2.28	5.28
27	2.46	2.5	2.54
28	5.27	5.28	5.28
29	5.22	5.27	5.27
30	0	5.01	0.05
31	0.17		1.9
32	0.12		
33	0.18	0.18	0.18
34	0.31	0.3	0.43
35	5.27	5.28	5.28
36	5.28	5.29	5.28
37	4.93	4.94	4.94
38	4.88	4.88	4.87
39	2.29	2.29	2.28
40	0	0	0
41	0	0	0
42	0	0	0
43	4.88	4.88	4.87
44	5.24	5.25	5.24
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0.01	5.28	
50	5.25	0	0
51	4.48	0.04	0.02
52	5.28	5.29	5.29
53	0	0	0
54	5.25	5.26	5.27

MODE / PIN NO.	EE	PB	REC
55	5.27	5.29	0.08
56	5.27	5.28	5.28
57	0	0	0
58	0	0	0
59	4.91	4.92	4.79
60	4.91	4.91	4.79
61	5.17	5.18	5.18
62	5.17	5.19	5.18
63	2.84	2.83	2.86
64	5.14	5.14	5.15
65	0.01	0.01	0.02
66	5.1	5.11	5.11
67	0.83	0.83	0.89
68	0.01	5.3	5.3
69	0.01	5.3	5.3
70	5.29	5.3	5.3
71	5.29	0	0.01
72	0.03	0.03	0.04
73	5.24	5.23	5.22
74	0	0	0
75	1.49	1.5	1.5
76	1.3	1.4	1.21
77	5.27	5.27	5.27
78	2.55	2.53	2.54
79	0	0	0
80	5.29	2.58	2.58
81	3.25	3.25	3.25
82	5.28	5.28	5.28
83	0	2.7	2.69
84	0	2.77	2.77
85	0	3.55	3.55
86	2.65	2.68	2.86
87	0	3.3	3.21
88	0	0	0
89	0	0	0
90	0	0	0
91	0	0	0
92	0.95	5.16	
93	0	0	0
94	0	0	0
95	0.29	0.1	0.07
96	0	0	0
97	0	0	0
98	5.26	5.26	5.25
99	0	2.7	0
100	0.01	0	0
101	0.7	0.13	0.57
102	0	0	0
103	0.12	1.39	1.39
104	0.12	1.39	1.39
105	0	2.7	0
106	0	2.64	5.12
107	0	2.75	2.74
108	0	2.78	2.77
109	0.05	0.05	0.05

MODE / PIN NO.	EE	PB	REC
110	0	0	0
111	4.2	0.4	0.4
112	5.29	5.28	5.27
IC503			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	5.01	4.95	4.79
6	5.01	4.95	4.8
7	0	0	0
8	5.29	5.29	5.28
IC504			
1	5.28	5.28	5.28
2	0	0	0
3	5.28	5.28	5.28
IC505			
1	5.28	5.28	5.28
2	0	0	0
3	4.87	4.87	4.87
IC506			
1	2.22	2.12	2.14
2	5.16	5.15	2.15
3	2.85	2.86	2.85
4	5.11	5.11	5.11
5	4.58	4.38	4.44
6	1.78	2.15	1.41
7	2.11	2.14	2.58
8	2.64	2.62	2.6
9	1.95	2.04	1.51
10	1.52	1.62	1.52
11	1.96	2.27	1.41
12	1.96	1.79	1.95
13	0.61	0.59	0.64
14	1.41	1.38	1.43
15	0.53	0.48	0.53
16	0.53	0.48	0.54
17	1.14	1.13	1.13
18	4.49	4.41	4.47
19	0	0	0
20	1.13	1.15	1.2
21	1.14	1.13	1.21
22	1.12	1.13	1.2
23	1.24	1.25	1.35
24	0	0	0
IC7V1			
1	0	0	0
2	5.01	4.94	4.79
3	5.01	4.94	4.78
4	0	0	0
5	5.28	5.28	0.39
6	5.28	5.28	
7	0	0	2.66
8	0	0	0
9	0.01	0.01	2.31

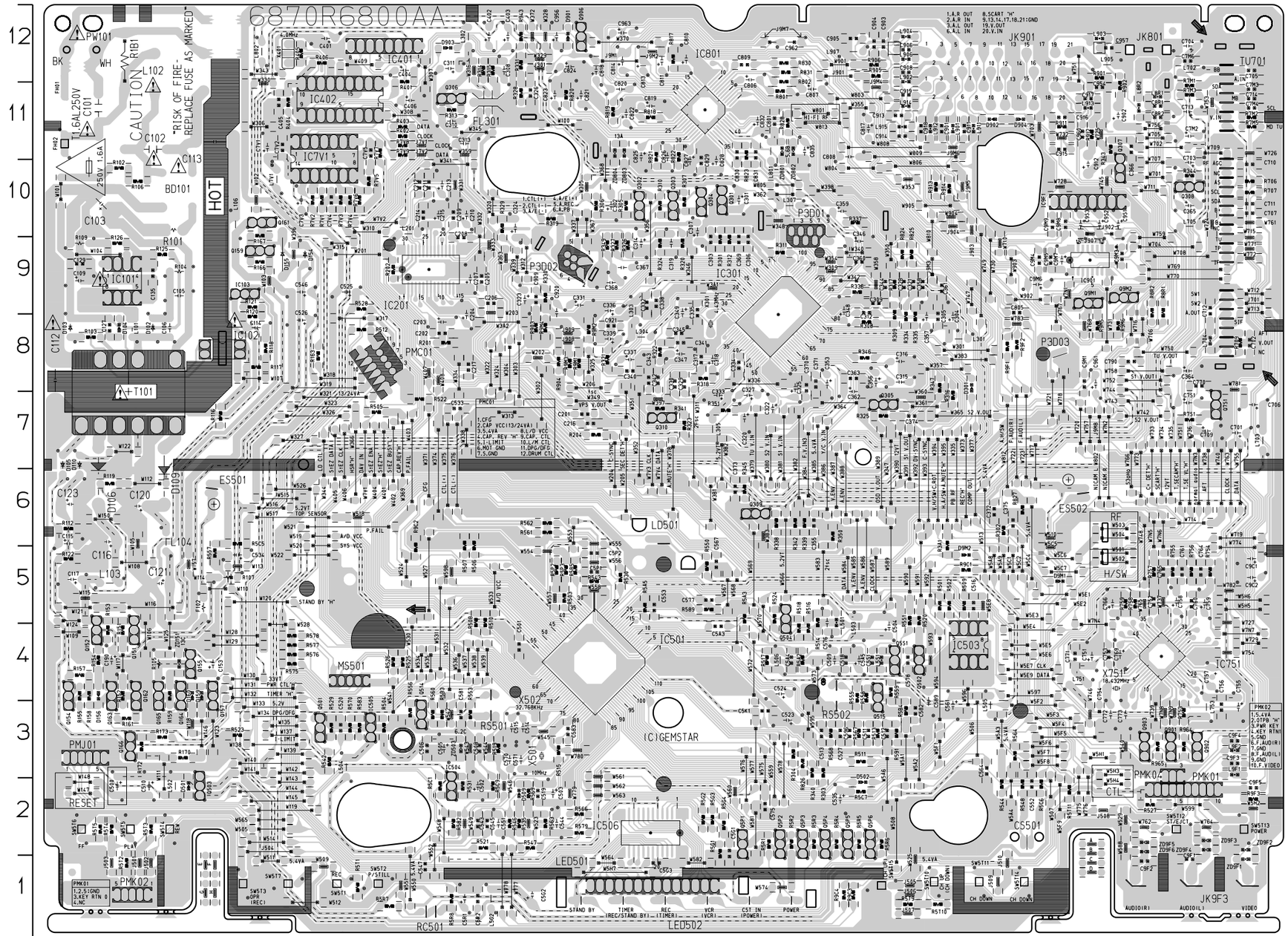
MODE / PIN NO.	EE	PB	REC
10	0	0	2.36
11	0.01	0	2.31
12	1.56	1.56	1.56
13	0.99	0.99	1.39
14	5.28	5.29	5.28
IC801			
1	2.84	2.91	2.7
2	2.92	2.91	2.81
3	2.91	2.9	2.81
4	2.82	2.81	2.68
5	2.8	2.86	2.67
6	2.8	2..86	2.66
7	2.79	2.85	2.65
8	2.78	2.85	2.65
9	2.79	2.84	2.66
10	2.79	2.84	2.66
11	2.77	2.83	2.65
12	2.76	2.82	2.64
13	2.71	2.75	2.59
14	2.49	2.51	2.33
15	2.48	2.51	2.32
16	2.64	2.67	2.49
17	2.64	2.68	2.5
18	1.48	2.57	2.32
19	2.63	2.67	2.5
20	2.6	2.63	2.5
21	2.57	2.59	2.47
22	2.66	2.86	2.55
23	2.63	2.64	2.51
24	2.5	2.5	2.39
25	2.52	2.53	2.4
26	2.36	2.37	2.27
27	0.01	0	0
28	2.51	2.47	2.41
29	2.6	2.57	2.46
30			
31	2.34	2.41	1.38
32	0.03	0.02	-0.07
33	0.03	0.04	-0.06
34	12.6	12.5	12.57
35	3.35	3.31	2.89
36	3.29	3.3	2.9
37	3.29	3.3	2.9
38	3.55	3.56	3.42
39	0	0	0.01
40	5.2	5.2	5.21
41	2.27	2.29	2.5
42	4.96	4.98	4.91
43	5.05	5.06	4.97
44	2.8	2.79	2.69
IC751			
1	5.14	5.15	5.15
2	1.51	1.51	1.51
3	1.51	1.51	1.51
4	0	0	0

MODE / PIN NO.	EE	PB	REC
5	2.47	2.48	2.48
6	2.47	2.48	2.48
7	0.54	0.5	0.46
8	0	0	0.45
9	0	0	0.45
10	0	0	0
11	5.16	5.16	5.16
12	4.91	4.86	4.79
13	4.9	4.8	4.79
14	2.58	0.51	0.57
15	2.58	0.5	0
16	2.41	0.51	0.57
17	0.53	0.53	0
18	0.54	0.51	0.58
19	5.13	5.14	5.14
20	0	0	0
21	0.53	0.51	0
22	5.16	5.16	5.16
23	0	0.02	0
24	0	0.02	0
25	0	0	0
26	0	0.05	0
27	0.05	0.05	0
28	0	0	0
29	0	0	2.8
30	2.8	2.8	2.8
31	2.79	2.79	2.79
32	0	0.02	0
33	5.16	5.14	5.15
34	4.2	4.2	4.21
35	0	0	0
36	2.8	2.8	2.8
37			0
38			0
39			0
40	2.84	2.84	2.79
41	2.85	2.83	2.79
42	2.59	2.59	2.59
43	2.31	2.31	2.3
44	3.3		0

Transistor	EE Mode			PB Mode			REC Mode		
	EE	PB	REC	EE	PB	REC	EE	PB	REC
Q151	4.55	5.3	5.24	5.34	4.54	5.24	5.3	4.55	5.24
Q152	5.31	4.52	5.22	5.31	4.52	5.22	5.3	4.51	5.22
Q154	32.99	32.34	32.97	33.53	32.89	33.5	33.76	33.12	33.72
Q155	12.73	13.4	14.05	12.68	13.35	13.77	12.76	13.42	13.98
Q157	0.03	0.84	4.38	0.03	0.84	4.38	-0.03	0.84	4.38
Q159	29.84	29.78	13.21	29.79	29.8	12.48	30.14	30.13	12.73
Q161	0.03	0	29.82	0.03	0	29.8	-0.03	0	30.11
Q162	0.02	0.69	0	-0.02	0.69	0	-0.02	0.69	0
Q163	0.03	5.18	0.03	0.03	5.18	0.03	-0.03	5.18	0.03
Q164	-0.03	4.38	-0.01	-0.03	4.38	-0.01	-0.03	4.38	0
Q165	14.06	-0.01	14.04	13.74	-0.01	13.71	13.95	-0.01	13.95
Q166	4.4	5.3	5.11	5.3	4.41	5.13	5.3	4.4	5.1
Q301	0	0.01	5.15	0	0	5.15	0	0.75	1.69
Q302	5.18	5.18	-0.42	5.18	4.52	5.12	5.14	5.13	-24.71
Q303	0.01	-0.42	0	0	0.69	0.01	-18.22	-24.85	0.01
Q304	0.01	-0.4	0	0	0.71	0	-18.22	-24.7	0
Q305	2.01	1.29	0	2.53	1.83	0	2.5	1.81	0
Q306	5.14	5.19	5.19	5.19	5.16	5.19	1.9	2.14	4.89
Q307	2.69	1.98	0	2.69	1.98	0	2.64	1.93	0
Q308	2.66	1.98	0	2.63	1.96	0	2.6	1.93	0
Q309	3.09	2.41	0	3.05	2.37	0	3.01	2.33	0
Q501	0	0.67	0.01	0	0.67	0.01	0	0.67	0.01
Q502	0	0.71	0.01	0	0.22	2.33	0	0.23	2.29
Q503	5.3	4.61	5.28	5.3	4.61	5.28	5.3	4.61	5.28
Q504	0	0.14	2.69	0.05	0.63	2.65	0.05	0.67	2.67
Q5S1	0.43	0	1.61	2.22	0	2.53	1.92	0	2.5
Q514	0	5.09	0.01	0			0		
Q515	0	0	5.16	0			0		
Q906	0	0.12	1.93	0	0.07	2.37	0	0.13	2.4
Q901	0	5.26	0.01	0	5.25	0.01	0	5.25	0.01
Q7S1	0	0	1.32	0	0		0	0	0.98
Q902	12.73	0.01	12.73	12.66	0.01	12.66	12.72	0.01	12.71
Q903	0	0	12.72	0	0	12.64	0	0	12.71

PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.Board

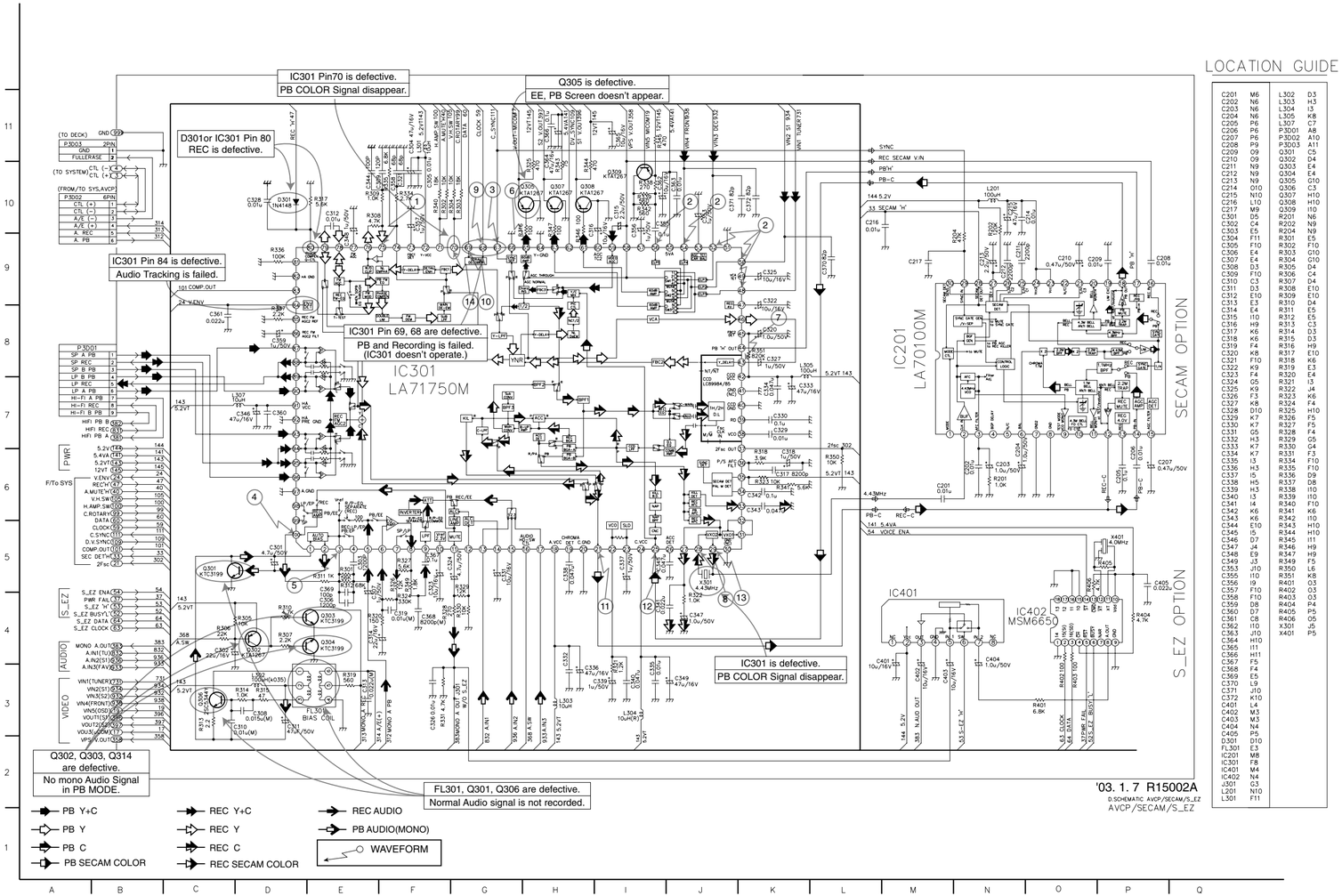


NOTES) ⚠ Warning
Parts that are shaded are critical
With respect to risk of fire or
electricial shock.

LOCATION GUIDE

BD101	B10	C339	H8	C570	G3	C814	H12	D160	B4	L506	J4	Q751	P7	R335	L8	R569	G2	R822	J11
C101	A11	C340	I8	C571	G3	C817	K11	D501	L8	L502	F1	Q901	O3	R336	K9	R570	D3	R823	J11
C102	B11	C341	I8	C575	J2	C818	H12	D501	B2	L551	K4	Q902	O3	R337	K10	R575	D4	R824	L9
C103	A10	C342	H8	C576	K5	C819	H11	D502	K2	L702	D12	Q903	O3	R338	J6	R576	D4	R825	L9
C105	B9	C343	H8	C577	I5	C820	H11	D569	G2	L703	P7	Q906	O12	R339	J6	R577	D4	R826	J3
C106	B8	C344	K9	C578	L4	C821	G11	D901	G12	L704	P8	Q9M1	N9	R340	J3	R578	D4	R827	M6
C109	A9	C345	I8	C581	F3	C822	H11	D902	M11	L705	O10	Q9M2	N9	R341	H7	R579	G2	R828	J11
C112	A9	C346	K9	C582	L3	C823	G11	D903	F12	L751	N4	R101	B10	R342	J6	R582	F2	R830	J12
C113	C11	C347	I8	C583	G3	C824	G12	D904	M11	L753	P3	R102	A10	R343	N11	R583	E3	R831	J12
C114	C8	C348	K9	C589	L3	C825	H11	D9M1	N5	L7V1	D10	R103	A8	R344	O10	R589	I5	R8R1	O9
C115	A6	C349	I9	C596	K3	C826	I11	D9M2	L5	L801	J11	R104	B9	R345	J6	R591	L3	R8R2	O9
C116	A6	C353	K8	C5A3	I4	C827	I10	E5501	C7	L802	C12	R105	B4	R346	K8	R5A2	J4	R901	N12
C117	A5	C355	J6	C5A4	J4	C828	I10	E5502	N6	L8R1	O11	R106	B10	R347	L8	R5A3	J5	R902	N11
C120	B6	C356	K8	C5A5	K4	C829	I10	F102	C5	L8R2	O11	R107	C5	R349	H9	R5A5	H5	R903	G8
C121	B5	C357	L8	C5C1	I2	C830	I11	FH01	A11	L901	L11	R109	A9	R350	K6	R5B3	F3	R904	G8
C123	A6	C358	J9	C5C2	G1	C831	J11	FH02	A11	L902	L12	R112	A6	R351	I7	R5BL	L3	R905	K12
C127	A8	C359	K10	C5G3	J3	C832	J11	FL301	F11	L903	N12	R116	C7	R3A1	L6	R5B5	G5	R906	K12
C129	A9	C360	K9	C5K1	J3	C835	J11	IC101	A9	L904	L12	R117	C8	R402	E12	R5C1	F2	R911	N11
C135	B9	C361	L9	C5P1	H5	C8R1	O11	IC103	C9	L905	N12	R118	C8	R403	E11	R5C5	G5	R912	N11
C153	C4	C362	K7	C5P2	H5	C8R2	O11	IC103	C9	L906	L12	R119	A6	R403	E11	R5C6	M2	R913	L10
C190	A4	C363	K8	C5R1	F1	C901	L11	IC401	E12	L907	K12	R120	C8	R404	D11	R5C7	K2	R914	L10
C201	G7	C364	I8	C5R2	F1	C902	L11	IC402	E12	L911	M11	R121	C8	R405	D12	R5D3	F2	R924	G12
C202	F8	C365	O10	C551	K4	C903	K12	IC503	M4	L912	L11	R122	A5	R406	D12	R5G1	I2	R964	O3
C203	F8	C366	O11	C553	H5	C904	K12	IC504	F2	L913	N11	R125	B9	R501	L5	R5G2	I2	R965	O3
C204	F8	C367	H9	C701	P8	C905	K12	IC506	F2	L914	L11	R126	A9	R502	L5	R5G3	I2	R9C1	E5
C205	F9	C368	H9	C702	P8	C906	L12	IC7Y1	D11	L915	L11	R151	B4	R503	G5	R5G4	I2	R9C2	E5
C206	F9	C369	I9	C703	O10	C908	L12	IC9F1	N10	L9F1	P3	R152	B4	R504	E3	R5P2	G5	R9C3	K1
C207	F9	C370	I9	C704	O10	C909	L12	IF5F2	P3	L9R3	A4	R153	A4	R505	E7	R5P3	A4	R9C4	K1
C208	F9	C371	J8	C705	P12	C911	L11	J501	B1	LD501	I5	R154	A4	R506	F6	R5R1	J2	R9F1	M8
C209	F10	C372	M6	C706	P7	C912	N10	J502	B1	LED501	I1	R155	A4	R507	F6	R5R2	J2	R9F2	M8
C210	F10	C373	I6	C707	P10	C913	L11	J503	B2	LED502	I1	R156	A4	R508	F5	R5R3	J2	R9F3	F2
C211	E10	C374	L7	C709	P7	C914	L11	J504	C2	M5501	O5	R158	A4	R509	L5	R5R4	K2	R9M1	G8
C212	E10	C375	M6	C710	P10	C915	N11	J505	L1	P3D01	J10	R159	B4	R510	F5	R5R5	K2	R9M2	H8
C213	F10	C401	D12	C711	P10	C916	N11	J506	L1	P3D02	O9	R161	B4	R511	F5	R5R6	K2	R9M3	G8
C214	E10	C402	F12	C712	P9	C917	N11	J507	L1	P3D03	N8	R163	D8	R512	E8	R5R7	E1	R9M4	G8
C215	F10	C403	F12	C713	P11	C918	L11	J508	N2	PMC01	E8	R166	C10	R513	E8	R5R8	F1	R9M5	N8
C216	H7	C404	G12	C714	P11	C919	L11	J509	M1	PMJ01	A3	R167	C10	R514	J5	R5S1	L5	R9M6	N8
C217	F8	C405	D11	C751	N4	C920	G9	J510	M1	PMK01	O2	R170	B3	R515	G3	R5T1	E1	RC501	E1
C301	I10	C406	E11	C752	O5	C921	H8	J701	P9	PMK02	B1	R172	B3	R516	G3	R5U1	E1	RC502	F3
C302	H10	C500	A2	C753	N4	C954	N11	J7V1	E11	PMK04	O3	R173	B3	R517	J4	R5U10	N2	RC502	K4
C303	I9	C501	G6	C754	N3	C956	G12	J7Y2	E11	PW101	A12	R181	B12	R518	J4	R5U11	N2	SW511	D1
C304	L8	C502	F2	C755	P3	C957	N12	J901	K12	Q151	B4	R201	F8	R519	J4	R5U12	N2	SW511	L1
C305	L8	C503	G2	C756	P3	C960	N11	J902	N10	Q152	A4	R202	E9	R520	L5	R5U13	N2	SW511	M1
C306	J9	C504	K4	C757	P4	C961	N8	J903	L10	Q154	A4	R204	H7	R521	F2	R5U14	N2	SW5T12	O2
C307	I10	C505	F3	C758	O5	C962	J12	J904	L10	Q155	A4	R301	I9	R522	E7	R5U15	N2	SW5T13	P2
C308	F12	C506	E3	C759	O5	C963	H12	J907	N10	Q157	C4	R302	M6	R523	C3	R5U16	N2	SW5T14	M1
C309	K9	C508	F3	C760	O5	C9C1	P5	J908	G8	Q159	C9	R303	K3	R524	J5	R707	P10	SW5T15	K1
C310	I11	C509	K4	C761	O5	C9C2	P5	J909	G8	Q161	C10	R304	J3	R525	E4	R709	P8	SW5T16	E1
C311	F12	C510	B2	C764	O5	C9F1	O1	J9M1	H12	Q162	B4	R305	H10	R526	E4	R753	O3	SW5T3	C1
C312	K9	C511	K3	C765	O5	C9F2	O1	J9M2	H12	Q163	A4	R306	H10	R527	O2	R754	P5	SW5T4	B2
C313	F11	C512	K3	C766	O5	C9F3	P3	J9M3	L10	Q164	B4	R307	I10	R528	E9	R755	O5	SW5T5	A2
C314	H9	C513	K3	C769	N6	C9F4	P3	J9M4	K11	Q165	B4	R308	K8	R529	D3	R756	O5	SW5T6	A2
C315	L8	C514	G3	C770	O8	C9F5	P2	J9M5	L10	Q166	B3	R309	K8	R530	H5	R757	O5	SW5T7	D1
C316	L8	C515	G3	C771	N5	C9M1	N9	J9M6	L11	Q201	I12	R310	H10	R531	F2	R758	O5	T101	B7
C317	I8	C516	M5	C772	N3	C9M3	N9	J9M7	J12	Q302	M6	R311	J9	R532	C3	R759	N5	TU701	P12
C318	I8	C518	K4	C773	N3	C9M4	M9	J9M8	N7	Q303	I10	R312	J9	R542	D3	R7M1	O11	X301	I8
C319	I9	C519	G2	C780	O8	C9M5	M9	JK901	O12	Q304	J5	R313	F11	R543	H5	R7M2	O11	X401	D12
C320	J7	C520	D3	C7M2	O11	C9M6	M9	JK901	M12	Q305	K7	R314	F12	R544	M2	R7M3	O11	X501	G3
C321	L9	C523	J3	C7M3	P11	C9M7	N9	JK9F3	P1	Q306	F11	R315	F12	R546	G2	R7M5	P11	X502	G3
C322	J7	C524	J4	C7M4	O12	C9M8	N10	L101	B8	Q307	M10	R316	L7	R547	G2	R751	O7	X751	N4
C323	G9	C525	D9	C7M6	O12	C9M9	N10	L102	B12	Q308	O10	R317	K9	R548	M2	R7V1	D10	ZD151	B4
C324	G10	C526	D8	C751	O7	C951	N10	L103	A5	Q309	J6	R318	I8	R550	I5	R7V2	D10	ZD503	F3
C325	J8	C527	K3	C7V1	C11	C952	N10	L104	B6	Q310	H7	R319	G10	R553	F3	R7V3	D10	ZD801	J11
C326	G11	C533	F7	C7V2	D11	C953	N10	L106	C10	Q501	D3	R320	I9	R555	K4	R7V4	D10	ZD802	J11
C327	J7	C534	C5	C7Y3	D10	C5501	M2	L201	E10	Q502	L4	R321	H8	R556	E3	R7V5	E10	ZD803	H11
C328	L9	C535	K2	C7Y4	D10	D102	B8	L301	L6	Q503	C2	R322	H8	R557	C5	R7V6	E10	ZD804	H11
C329	I8	C543	F2	C7Y5	E11	D103	A8	L302	F12	Q504	J5	R323	I7	R558	K4	R7V7	E11	ZD9F1	P1
C330	I8	C544	G2	C801	J11	D104	A8	L303	H9	Q514	E3	R324	H9	R559	K4	R7V8	E11	ZD9F2	P2
C331	G9	C545	F2	C805	M9	D105	A7	L304	H8	Q515	K4	R325	K7	R560	F3	R7Y9	E11	ZD9F3	P2
C332	H9	C546	D9	C806	J12	D106	A6	L305	I7	Q5P1	J2	R326	H9	R561	G6	R801	J11	ZD9F4	P2
C333	I7	C547	E1	C807	J11	D109	B6	L307	J10	Q5P2	J2	R327	H9	R562	G6	R802	J12	ZD9F5	O2
C334	I8	C551	F2	C808	K11	D110	A7	L501	K5	Q5P3	J2	R328	G11	R563	G2	R817	I12	ZD9F6	O2
C335	I9	C552	M2	C809	J12	D154	D9	L502	B2	Q5P4	K2	R329	F10	R564	M3	R818	H11		
C336	H9	C561	L3	C810	I12	D155	D9	L503	K4	Q5P5	K2	R330	G9	R566	G2	R819	H11		
C337	H8	C564	M3	C811	H12	D156	A4	L504	D3	Q5P6	K2	R331	G12	R567	K3	R820	G11		
C338	H9	C567	I5	C813	H12	D159	C4	L505	M3	Q551	K4	R334	L8	R568	K3	R821	H11		

3. A/V, SECAM, VPS Circuit Diagram



LOCATION GUIDE

C201	M6	L302	D3
C202	N6	L303	H3
C203	N6	L304	L5
C204	N6	L305	K8
C205	P6	L307	C7
C206	P6	P3D01	A8
C207	P6	P3D02	A10
C208	P9	P3D03	A11
C209	O9	Q301	C5
C210	O9	Q302	D4
C211	N9	Q303	E4
C212	N9	Q304	E4
C213	N9	Q305	G10
C214	O10	Q306	C3
C215	N10	Q307	H10
C216	L10	Q308	H10
C217	M9	Q309	I10
C301	D5	R201	N6
C302	C4	R202	N9
C303	E5	R203	N9
C304	F11	R301	E5
C305	F10	R302	F10
C306	E4	R303	G10
C307	E4	R304	G10
C308	D3	R305	D4
C309	F10	R306	C4
C310	C3	R307	D4
C311	D3	R308	E10
C312	E10	R309	E10
C313	E3	R310	D4
C314	E4	R311	E5
C315	I10	R312	E5
C316	H9	R313	C3
C317	K6	R314	D3
C318	K6	R315	D3
C319	F4	R316	H9
C320	K8	R317	E10
C321	F10	R318	K6
C322	E10	R319	E3
C323	F4	R320	E4
C324	G5	R321	I3
C325	K9	R322	J4
C326	F3	R323	K6
C327	K8	R324	F4
C328	D10	R325	H10
C329	K7	R326	F5
C330	K7	R327	F5
C331	G5	R328	F4
C332	H3	R329	G5
C333	K7	R330	G4
C334	K7	R331	F3
C335	I3	R334	F10
C336	H3	R335	F10
C337	I5	R336	D9
C338	H5	R337	D8
C339	H3	R338	I10
C340	I3	R339	I10
C341	I4	R340	F10
C342	K6	R341	K6
C343	K6	R342	I10
C344	E10	R343	H10
C345	I5	R344	H10
C346	D7	R345	I11
C347	J4	R346	H9
C348	E9	R347	H9
C349	J3	R349	F5
C353	J10	R350	L6
C355	I10	R351	K8
C356	I9	R401	O3
C357	F10	R402	O3
C358	F10	R403	O3
C359	D8	R404	P4
C360	D7	R405	P5
C361	D8	R406	O5
C362	I10	X301	J5
C363	J10	X401	P5
C364	H10		
C365	I11		
C366	H11		
C367	F5		
C368	F4		
C369	E5		
C370	L9		
C371	J10		
C372	K10		
C401	L4		
C402	M3		
C403	M3		
C404	N4		
C405	P5		
D301	D10		
FL301	E3		
IC201	M8		
IC301	F8		
IC401	M4		
IC402	N4		
J301	G3		
L201	M10		
L301	F11		

WAVEFORM & VOLTAGE SHEET

★ IC301 Oscilloscope Waveform

① IC301 Pin 75
PB mode
500mvp-p

② IC301 Pins 48, 50, 52, 54, 56
Video in 1Vp-p

③ IC301 Pin 67
PB/REC mode
4.0Vp-p

④ IC301 Pin 10
REC mode
1.1Vp-p

⑤ IC301 Pin 3
REC mode
2.0Vp-p

⑥ IC301 Pin 65
PB mode
2.02Vp-p

⑦ IC301 Pin 43
PB mode
400mVp-p

⑧ IC301 Pin 28
PB mode
400mVp-p

⑨ IC301 Pin 68
PB/REC mode
5Vp-p

⑩ IC301 Pin 69
PB/REC mode
5Vp-p

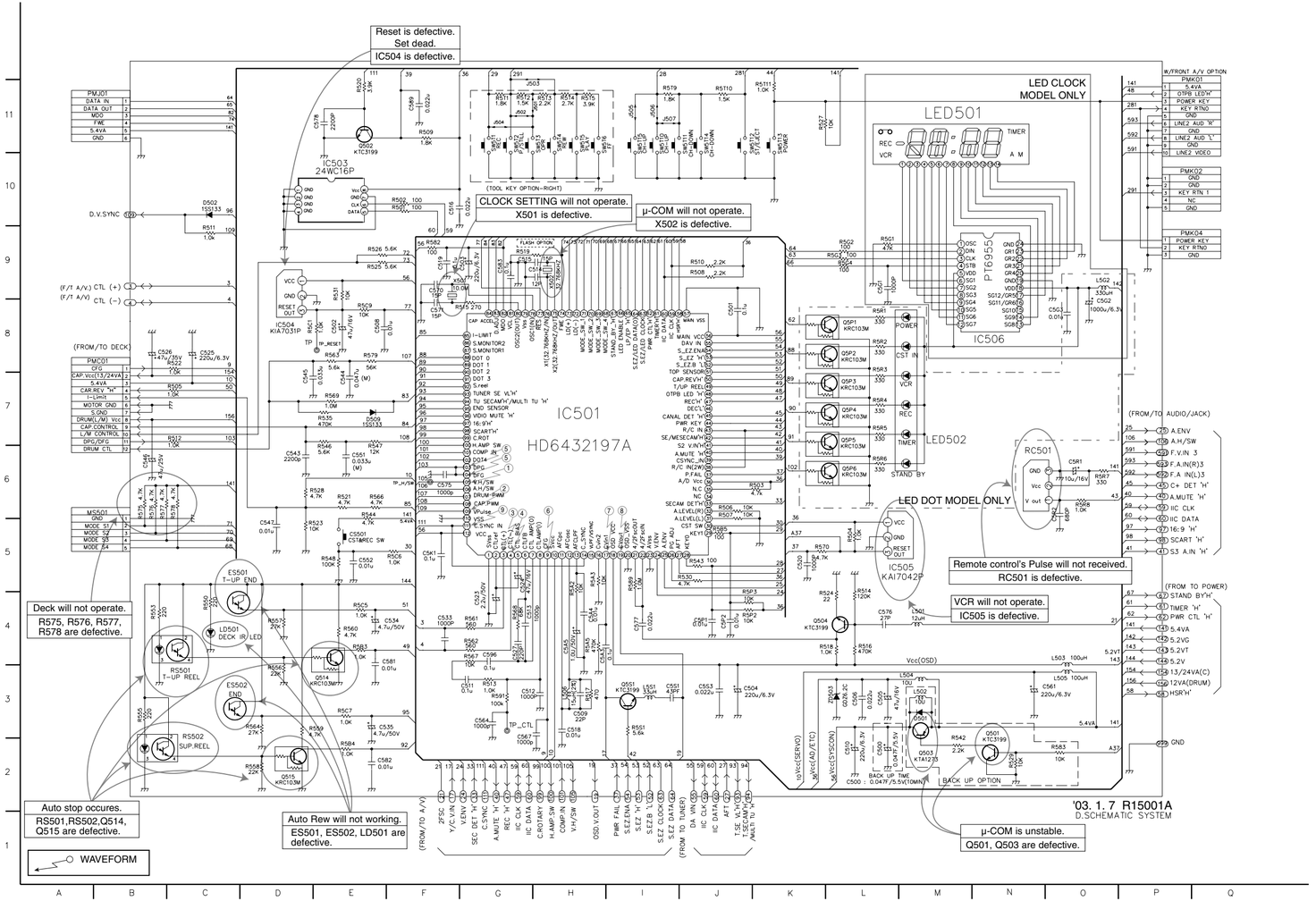
⑪ IC301 Pins 21
REC mode
340mVp-p

⑫ IC301 Pins 25
PB mode
300mVp-p

⑬ IC301 Pin 29
PB mode
400mVp-p

⑭ IC301 Pin 70
PB mode
3.6Vp-p

4. System Circuit Diagram



* IC501 Waveform Photographs

① V.HSW
(IC501 Pin 105)
1V/10mS
REC/PB MODE

② DV.SYNC
(IC501 PIN 109)
1V/100uS
QUE/REV MODE

③ CTL(+)
(IC501 Pin 3)
1V/10mS

④ CTL(-)
(IC501 Pin4)
1V/10mS

⑤ DFG/FG
(IC501 PIN 103,104)
1V/10mS
REC/PB MODE

⑥ CFG
(IC501 Pin9)
1V/10mS

⑦ V.IN
(IC501 Pin 17)
500mV/20uS
EE/PB MODE

⑧ V.OUT
(IC501 Pin 19)
500mV/20uS
EE/PB MODE

⑨ C.SYNC
(IC501 Pin 111)
1.0V/100uS
EE/PB MODE

SECTION 4 MECHANISM
CONTENTS

DECK MECHANISM PARTS LOCATIONS

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• Bottom View 4-1

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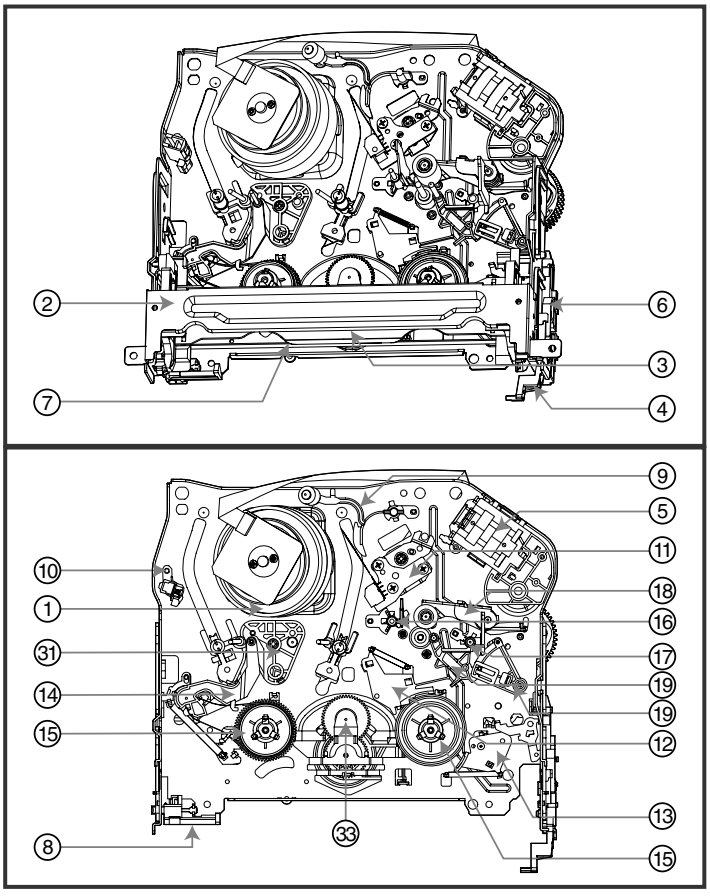
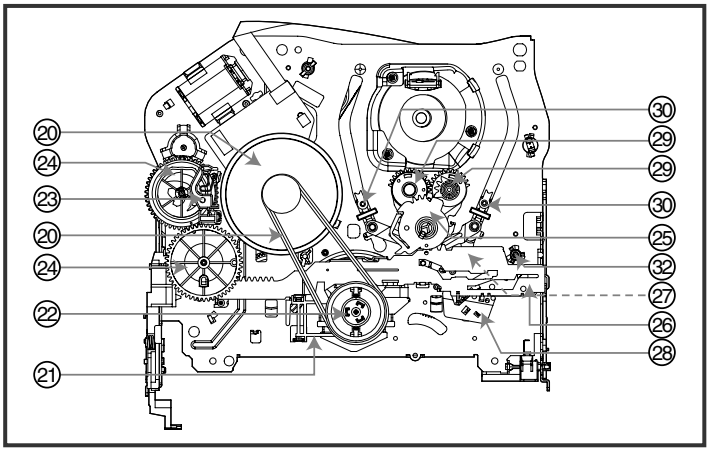
DECK MECHANISM PARTS LOCATIONS

• Top View



• Bottom View



NOTE : When reassembly perform the procedure in the reverse order.

1) When reassembling, confirm Mechanism and Mode Switch Alignment Position (Refer to Page 4-13)
2) When disassembling, the Parts for Starting No. Should be removed first.

Procedure / Starting No.		Part	Fixing Type	Figure	View
	1	Drum Assembly	3 Screw	A-1	T
	2	Plate Top	2 Hook	A-2	T
2	3	Holder Assembly CST	Chassis Hole	A-2	T
2	4	Opener Door	Chassis Hole	A-2	T
	5	Bracket Assembly L/D Motor	3 Hook	A-2	T
2,3,4	6	Gear Assembly Rack F/L	1 Hook, Chassis Hole	A-2	T
2,3,4,6	7	Arm Assembly F/L	Chassis Hole	A-2	T
	8	Lever Assembly S/W	1 Hook	A-2	T
	9	Arm Assembly Cleaner	Chassis Embossing	A-3	T
	10	Head F/E	Chassis Embossing	A-3	T
	11	Base Assembly A/C Head	1 Screw	A-3	T
2,3	12	Brake Assembly T	1 Hook	A-4	T
2,3	13	Brake Assembly RS	1 Hook	A-4	T
2,3	14	Arm Assembly Tension	2 Hook	A-4	T
2,3,12,13, 14	15	Reel S/Reel T		A-4	T
	16	Base Assembly P4	Chassis Embossing	A-5	T
	17	Opener Lid	Chassis Embossing	A-5	T
17	18	Arm Assembly Pinch	Shaft	A-5	T
17	19	Lever T/Up / Arm T/Up	1 Hook	A-5	T
17,18	20	Belt Capstan/Motor Capstan	3 Screw	A-6	B
	21	Lever F/R	Locking Tab	A-6	B
20, 21	22	Clutch Assembly D35	Washer	A-6	B
	23	Brake Assembly Capstan	Locking Tab	A-6	B
	24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
	25	Gear Sector	1 Hook	A-7	B
20,21,23, 24,25	26	Plate Slider	Shaft Guide	A-7	B
20,21,23, 24,25,26	27	Lever Tension	1 Hook	A-7	B
2,3,14,20, 21,25,23, 24,26	28	Lever Spring	Locking Tab	A7	B
25	29	Gear Assembly P2/Gear Assembly P3	Boss	A-8	B
2,3,14,25, 29	30	Base Assembly P2/Base Assembly P3	Chassis Slot	A-8	B
2,3,14,25, 29	31	Base Loading	1 Screw	A-9	T
2,3,14	32	Base Tension	Chassis Embossing	A-9	B
2,3,20,21, 22	33	Arm Assembly Idler	Locking Tab	A-9	T

T:Top, B:Bottom

DECK MECHANISM DISASSEMBLY

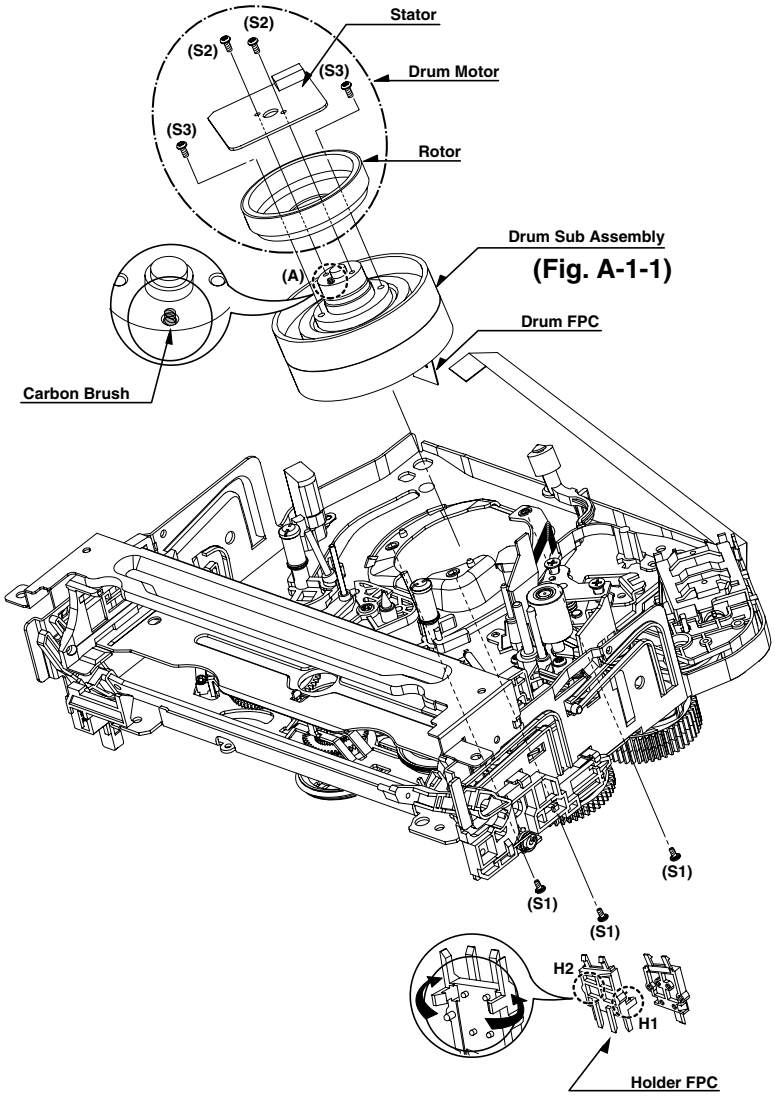


Fig. A-1

1. Drum Assembly (Fig. A-1-1)

1) Unplug the Drum FPC Connector.
2) Remove three Screws(S1) on bottom side and separate the Drum assembly.
3) Unhook (H1), (H2) and separate the Holder FPC and Cap FPC.

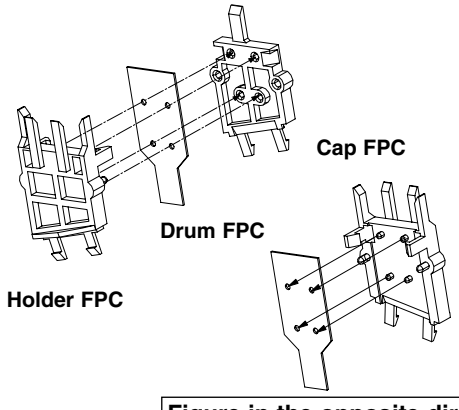
1-1. Drum Motor

1) Remove two Screws(S2) and disassemble the Stator of the Drum Motor.
2) Remove two Screws(S3) and separate the Rotor of the Drum Motor from the Drum Sub assembly.

NOTE

When reassembling, confirm (A) portion of the Drum Sub assembly whether the Carbon Brush is in there or not.

(Fig. B-1)



DECK MECHANISM DISASSEMBLY

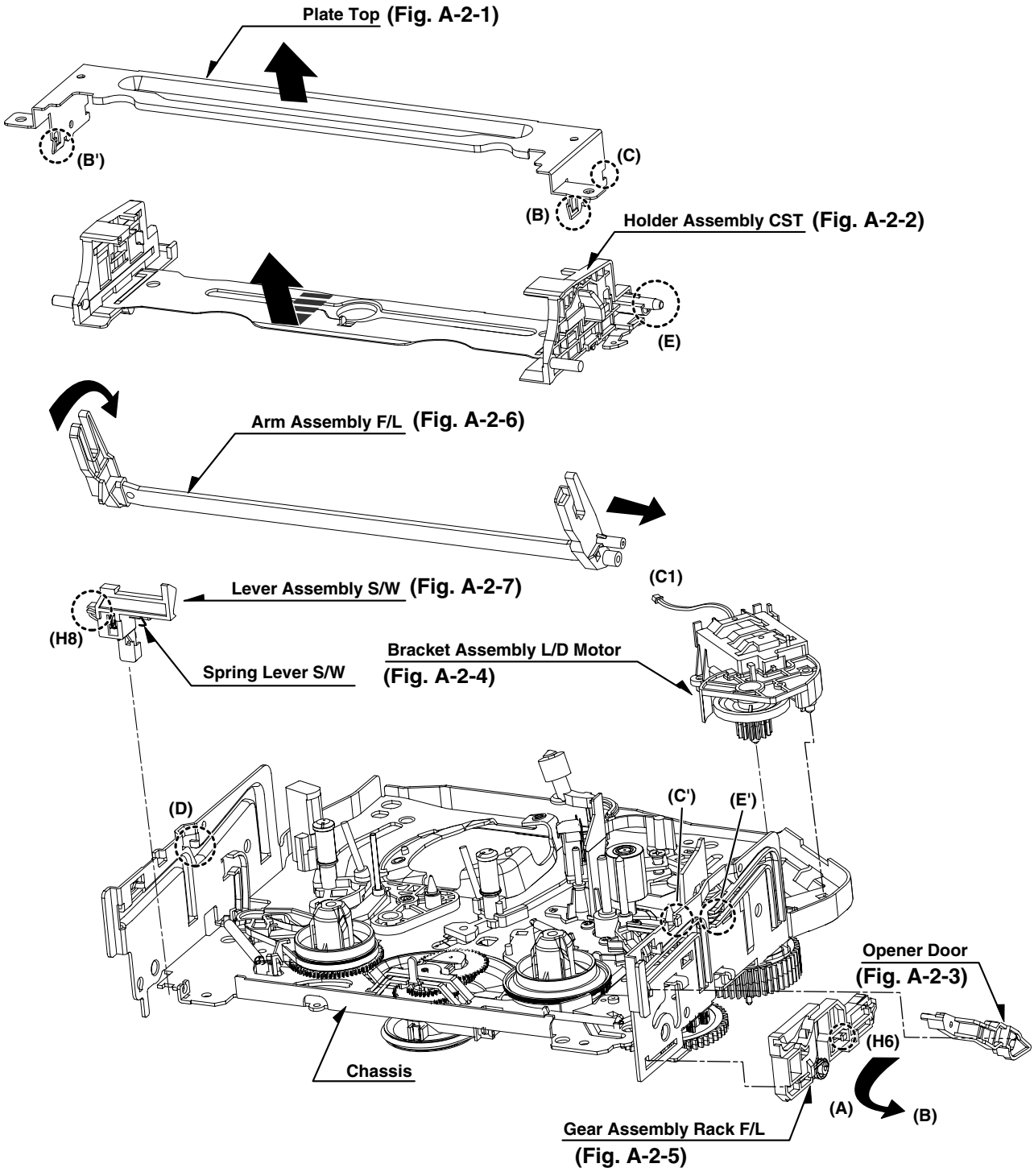


Fig. A-2

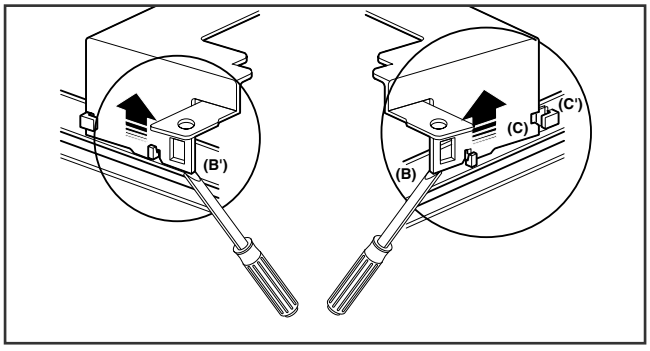
DECK MECHANISM DISASSEMBLY

2. Plate Top (Fig. A-2-1)

1) Pull the (B) portion of the Plate Top back in direction of arrow and separate the right side of it.
2) pull the (B') portion of the Plate Top back in direction of arrow and separate the left side of it.
   (Used tools : (-) type driver, anything tool with sharp point or flat point.)

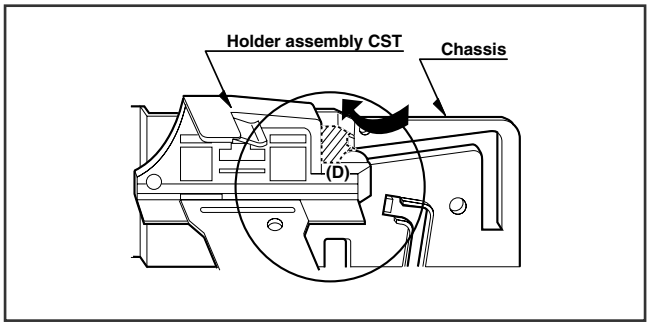
NOTE

(1) When reassembling, push the Plate Top after alignment the two position(C), (C') as below Fig.



3. Holder Assembly CST (Fig.A-2-2)

1) Move the Holder Assembly CST in direction of arrow and separate the left side of it first through the (D) position of the Chassis.



2) Disassemble the right side of the Holder Assembly CST from each guided hole of the Chassis.

NOTE

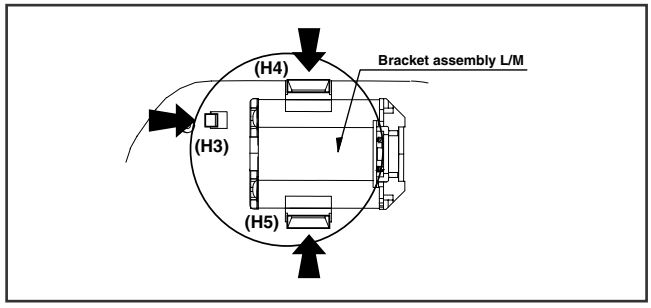
When reassembling, insert the (E) part of the Holder Assembly CST in the (E') hole of the Chassis first and assemble the left side of it.

4. Opener Door (Figure. A-2-3)

1) Turn the Opener Door clockwise and remove it through the guide hole of the Chassis.

5. Bracket Assembly L/D Motor (Fig. A-2-4)

1) Unplug the Connector(C1).
2) Unhook three Hooks(H3, H4, H5) on bottom side of the Chassis, lift up the Bracket Assembly L/M and disassemble the Bracket Assembly L/D Motor.

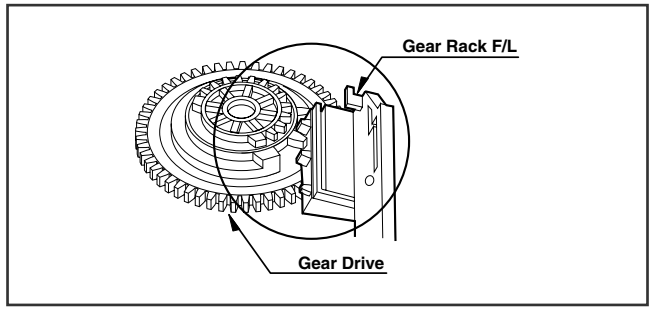


6. Gear Assembly Rack F/L (Fig. A-2-5)

1) Move the Gear Assembly Rack F/L in direction of arrow(A) and unhook the Hook(H6) pulling back in front.
2) Separate the Gear Rack F/L in direction of arrow(B).

NOTE

When reassembling, align the gear part of the Gear Assembly Rack F/L with the Gear Drive as below Fig.

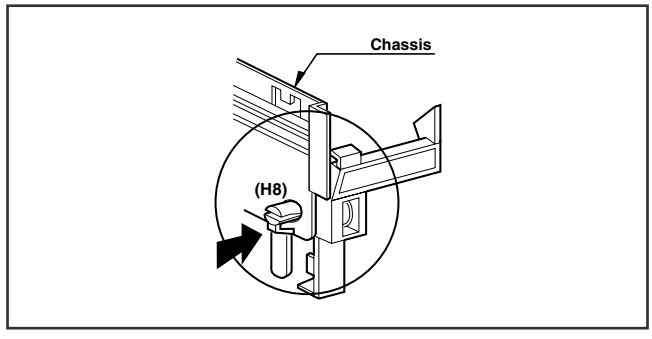


7. Arm Assembly F/L (Fig. A-2-6)

1) Move the Arm Assembly F/L in direction of arrow and separate the left side of it first.
2) Disassemble the Arm Assembly F/L from each guided hole of the Chassis.

8. Lever Assembly S/W(Fig. A-2-7)

1) Unhook the Hook(H8) in the left side of the Chassis and remove the Lever Assembly S/W.



DECK MECHANISM DISASSEMBLY

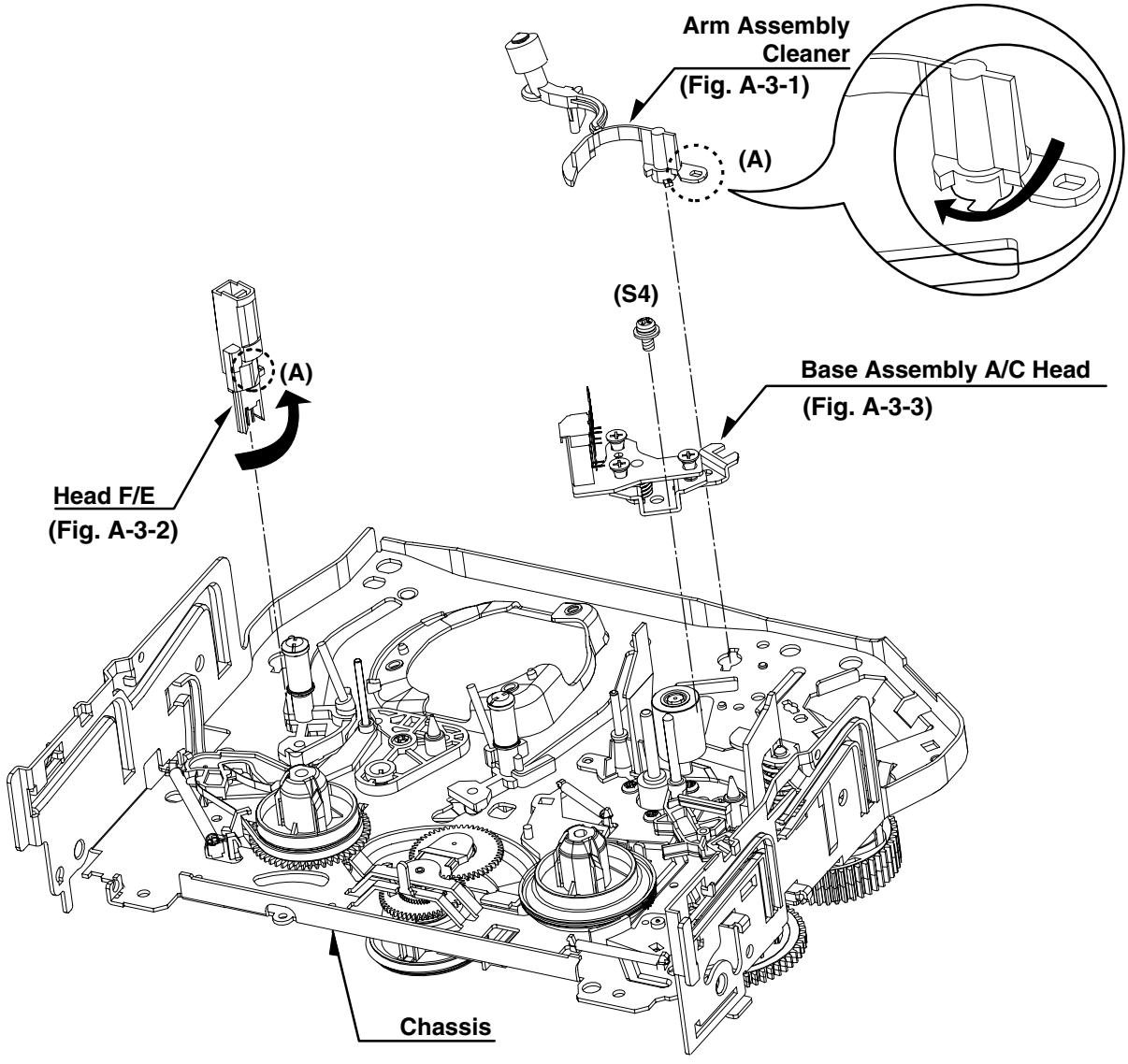


Fig. A-3

9. Arm Assembly Cleaner (Fig. A-3-1)

1) Breakaway the (A) portion as Fig. A-3-1 from the embossing of the Chassis, turn the Arm assembly Cleaner to clockwise direction and lift it up.

10. Head F/E (Fig. A-3-2)

1) Breakaway the (A) portion of the Head F/E from the embossing of the Chassis, turn it to counterclockwise direction and lift it up.

11. Base Assembly A/C Head (Fig. A-3-3)

1) Remove the Screw(S4) and lift the Base Assembly A/C Head up.

DECK MECHANISM DISASSEMBLY

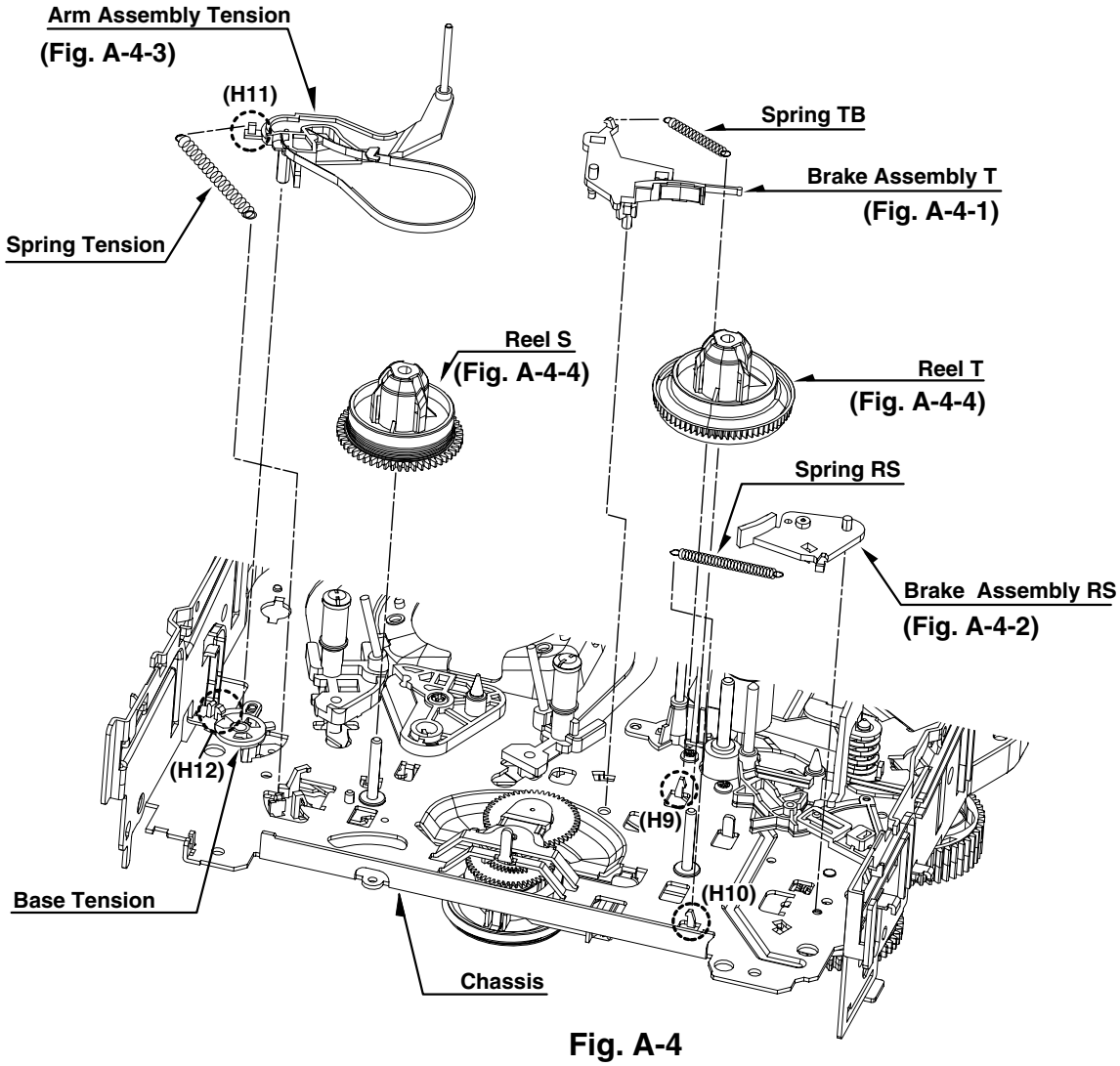


Fig. A-4

12. Brake Assembly T (Fig. A-4-1)

1) Unhook the Spring TB from the Hook(H9) of the Chassis.
2) Lift the Brake Assembly T up.

13. Brake Assembly RS (Fig. A-4-2)

1) Unhook the Spring RS from the Hook(H10) of the Chassis.
2) Lift the Brake Assembly T up.

14. Arm Assembly Tension (Fig. A-4-3)

1) Unhook the Spring Tension from the Hook(H11) of the Arm Assembly Tension.
2) Unhook the Hook(H12) of the Base Tension and lift the Arm Assembly Tension up.

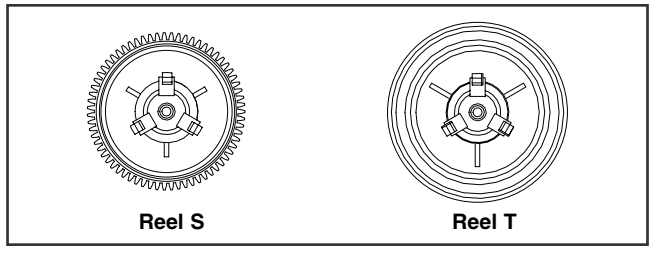
NOTE

Difference for Springs

	Spring TB
	Spring RS **Color (Black)**
	Spring Tension

15. Reel S / Reel T (Fig. A-4-4)

1) Difference for Reel S / Reel T



DECK MECHANISM DISASSEMBLY

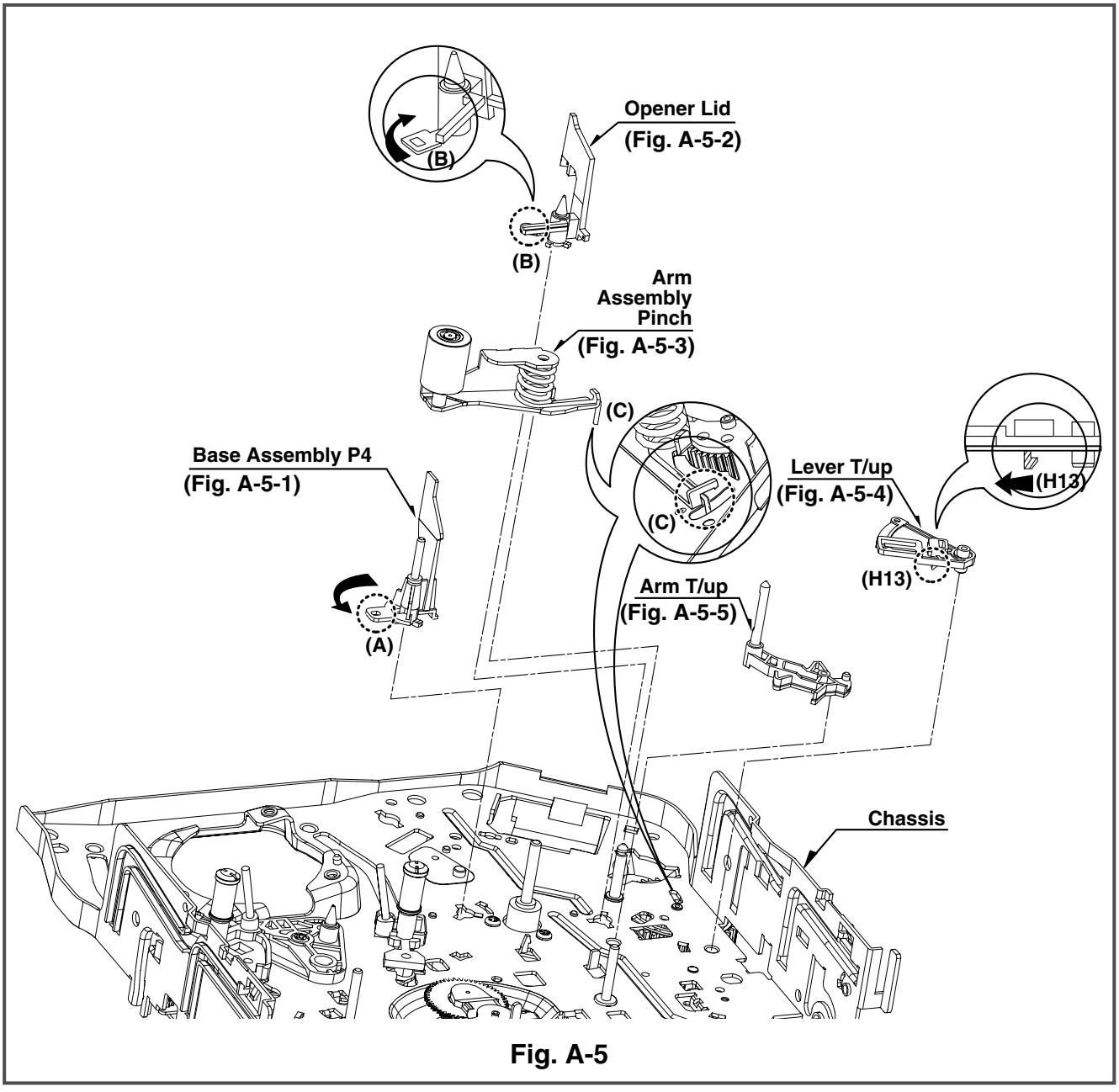


Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

1) Breakaway the (A) portion of the Base Assembly P4 from the embossing of the Chassis.
2) Turn the Base Assembly P4 to counterclockwise direction and lift it up.

17. Opener Lid (Fig. A-5-2)

1) Breakaway the (B) portion of the Opener Lid from the embossing of the Chassis.
2) Turn the Opener Lid to clockwise direction and lift it up.

18. Arm Assembly Pinch (Fig. A-5-3)

1) Lift the Arm Assembly Pinch up.

NOTE

When reassembling, confirm the (C) portion of the Arm Assembly Pinch is inserted to the Chassis hole correctly as Fig.

19. Lever T/up (Fig. A-5-4)/ Arm T/up (Fig. A-5-5)

1) Unhook the Hook(H13) of the bottom Chassis and lift the Lever T/up up.
2) Lift the Arm T/up up.

DECK MECHANISM DISASSEMBLY

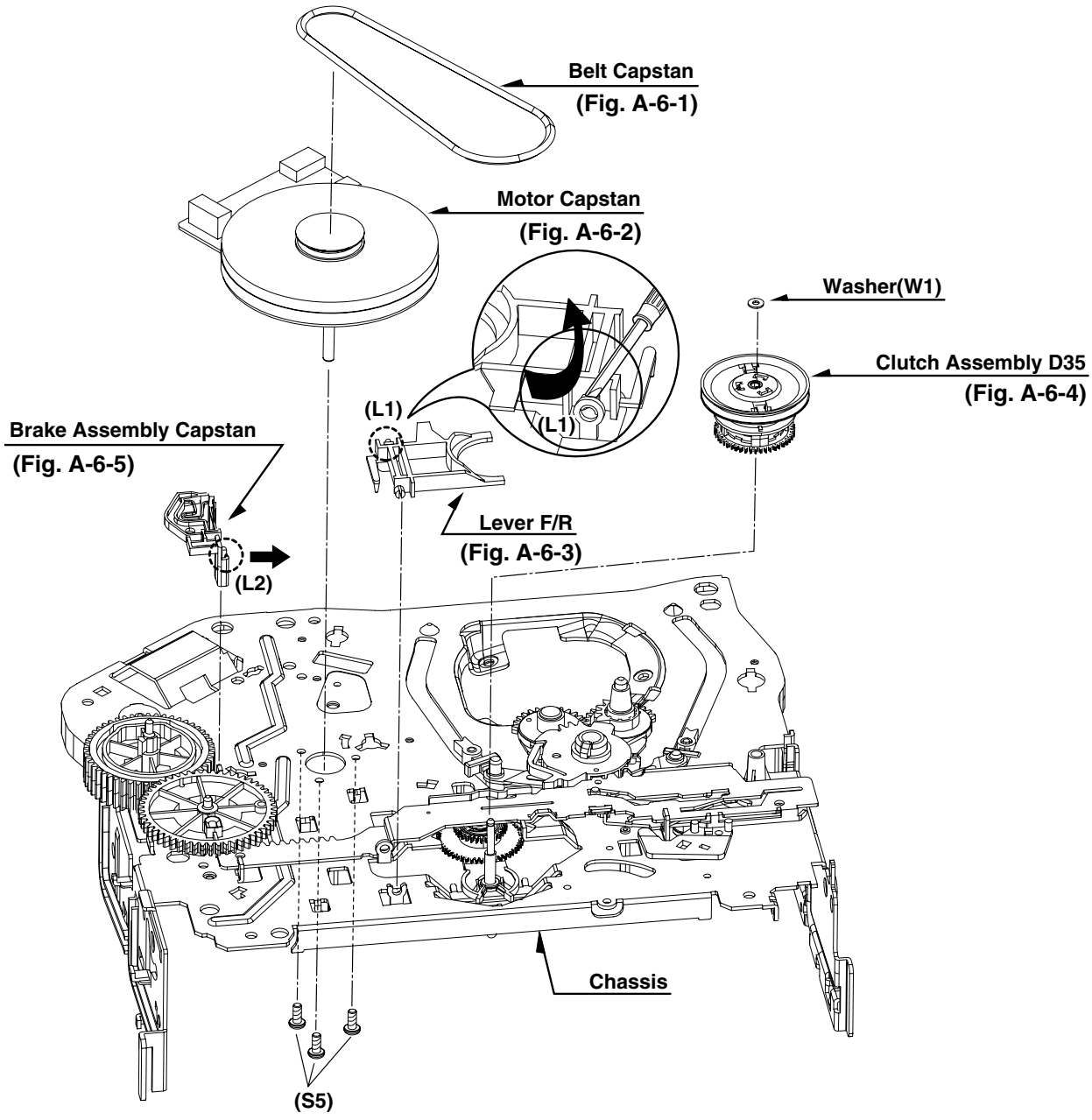


Fig. A-6

20. Belt Capstan (Fig. A-6-1)/ Motor Capstan (Fig. A-6-2)

1) Remove the Belt Capstan.
2) Remove the three Screws(S5) on bottom Chassis and lift the Motor Capstan up.

21. Lever F/R (Fig. A-6-3)

1) Unlock the Locking Tab(L1) as Fig. A-6-3 and lift the Lever F/R up.

22. Clutch Assembly D35 (Fig. A-6-4)

1) Remove the Washer(W1) and lift the Clutch Assembly D35 up.

23. Brake Assembly Capstan (Fig. A-6-5)

1) Pull the Locking Tab(L2) back in direction of arrow and lift it up.

DECK MECHANISM DISASSEMBLY

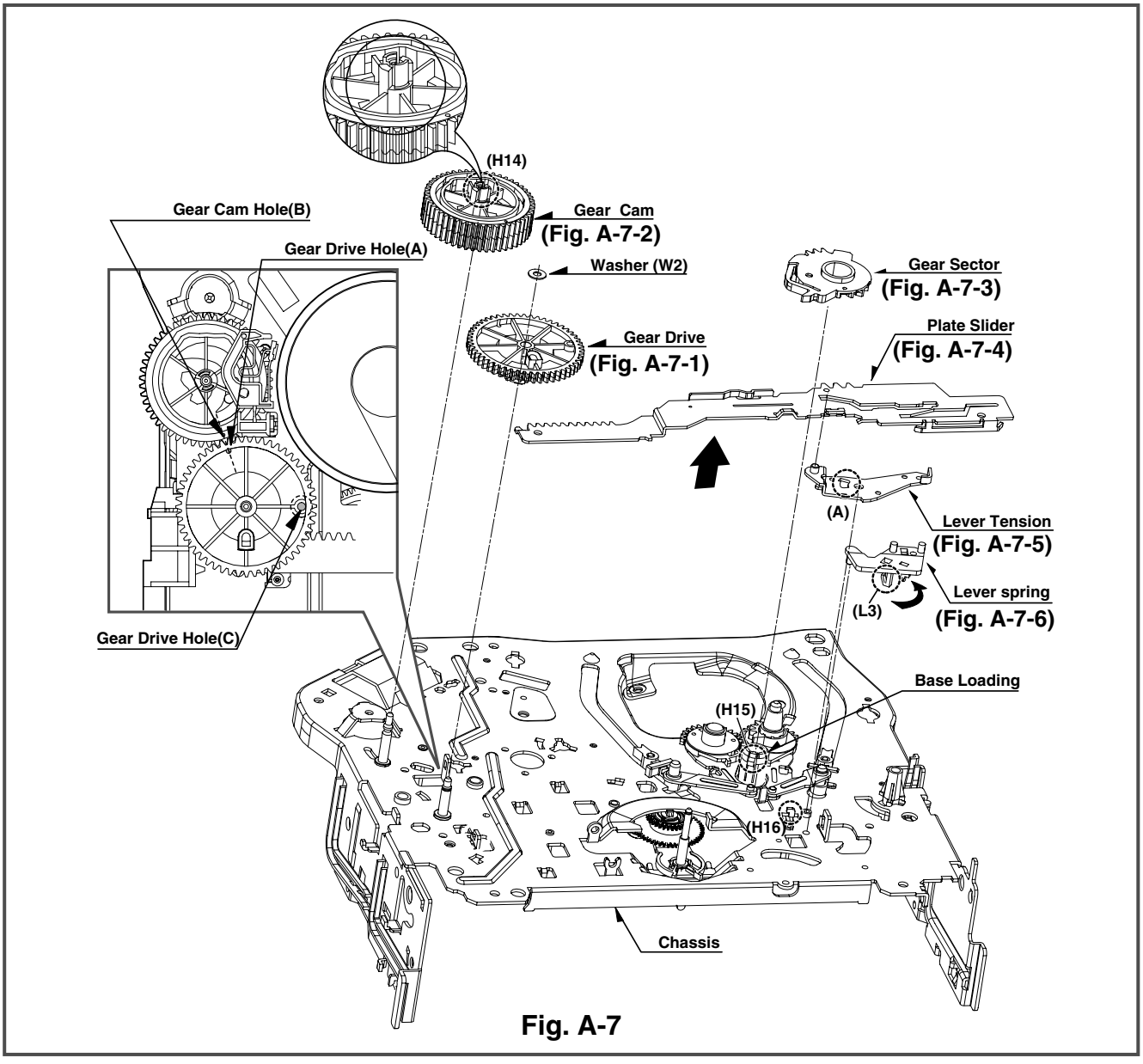


Fig. A-7

24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

1) Remove the Washer(W2) and lift the Gear Drive up.
2) Unhook the Hook(H14) of the Gear Cam and lift the Gear Cam up.

NOTE

When reassembling, align the Gear Drive Hole(A) and the Gear Cam Hole(B) in a straight line after the Gear Drive Hole(C) is aligned with the Chassis Hole as Fig.

25. Gear Sector (Fig. A-7-3)

1) Unhook the Hook(H15) of the Base Loading on bottom Chassis and lift the Gear Sector up.

26. Plate Slider (Fig. A-7-4)

1) Just lift the Plate Slider up.

27. Lever Tension (Fig. A-7-5)

1) Unhook the (A) portion of the Lever Tension from the Hook(H16) of the Chassis.
2) Turn the Lever Tension to counterclockwise direction and lift it up.

28. Lever Spring (Fig. A-7-6)

1) Unlock the Locking Tab(L3) of the bottom Chassis and lift the Lever Spring up.

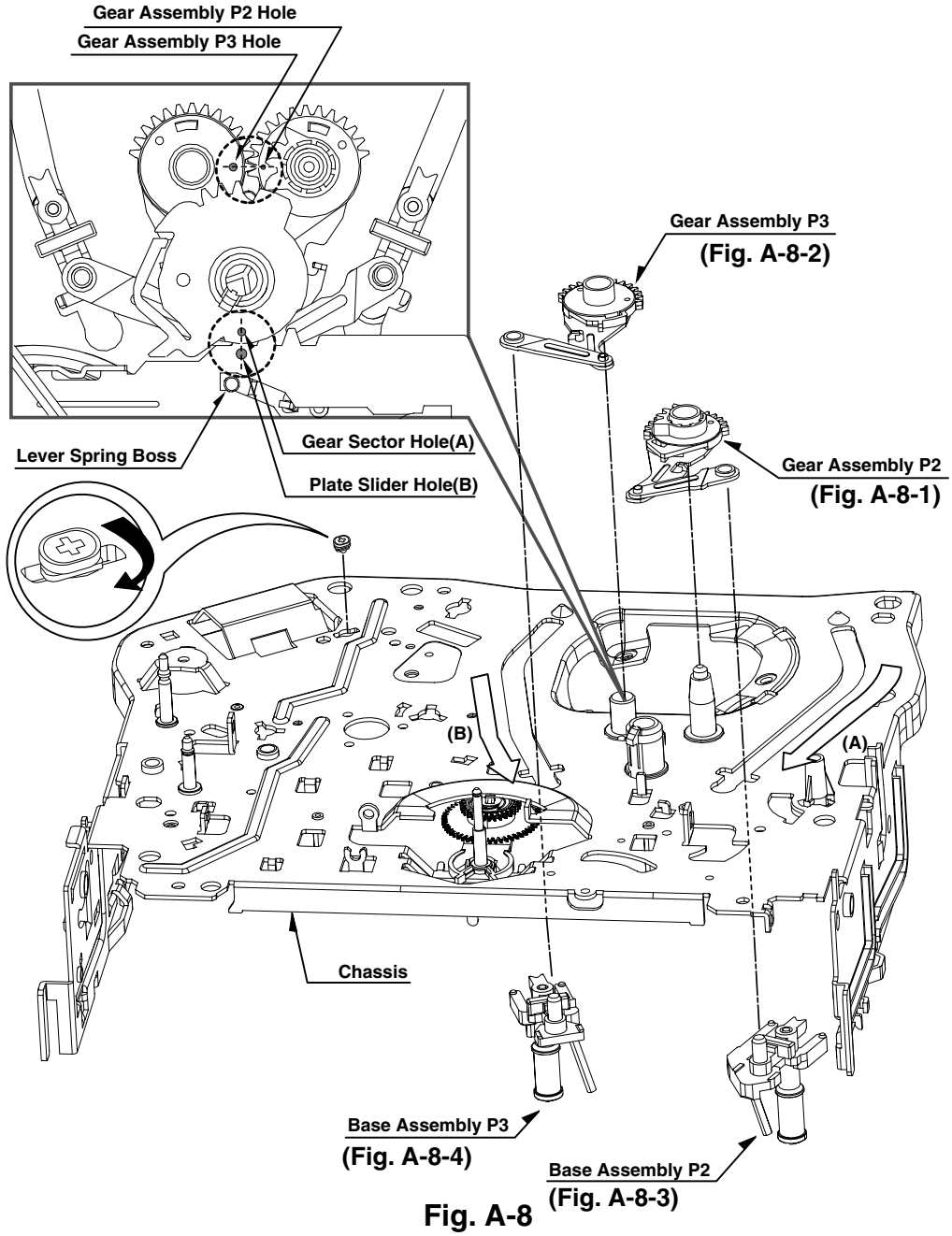


Fig. A-8

29. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

1) Just lift the Gear Assembly P2 up.
2) Just lift the Gear Assembly P3 up.

NOTE

When reassembling, align the two holes of the Gear Assembly P2 and P3 in a straight line after confirmation whether the Gear Sector Hole(A) and the Plate Slider Hole(B) are aligned or not as Fig.

30. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

1) Move the Base Assembly P2 in direction of arrow(A) along the guide hole of the Chassis and disassemble it on bottom side.
2) Move the Base Assembly P3 in direction of arrow(B) along the guide hole of the Chassis and disassemble it on bottom side.

DECK MECHANISM DISASSEMBLY

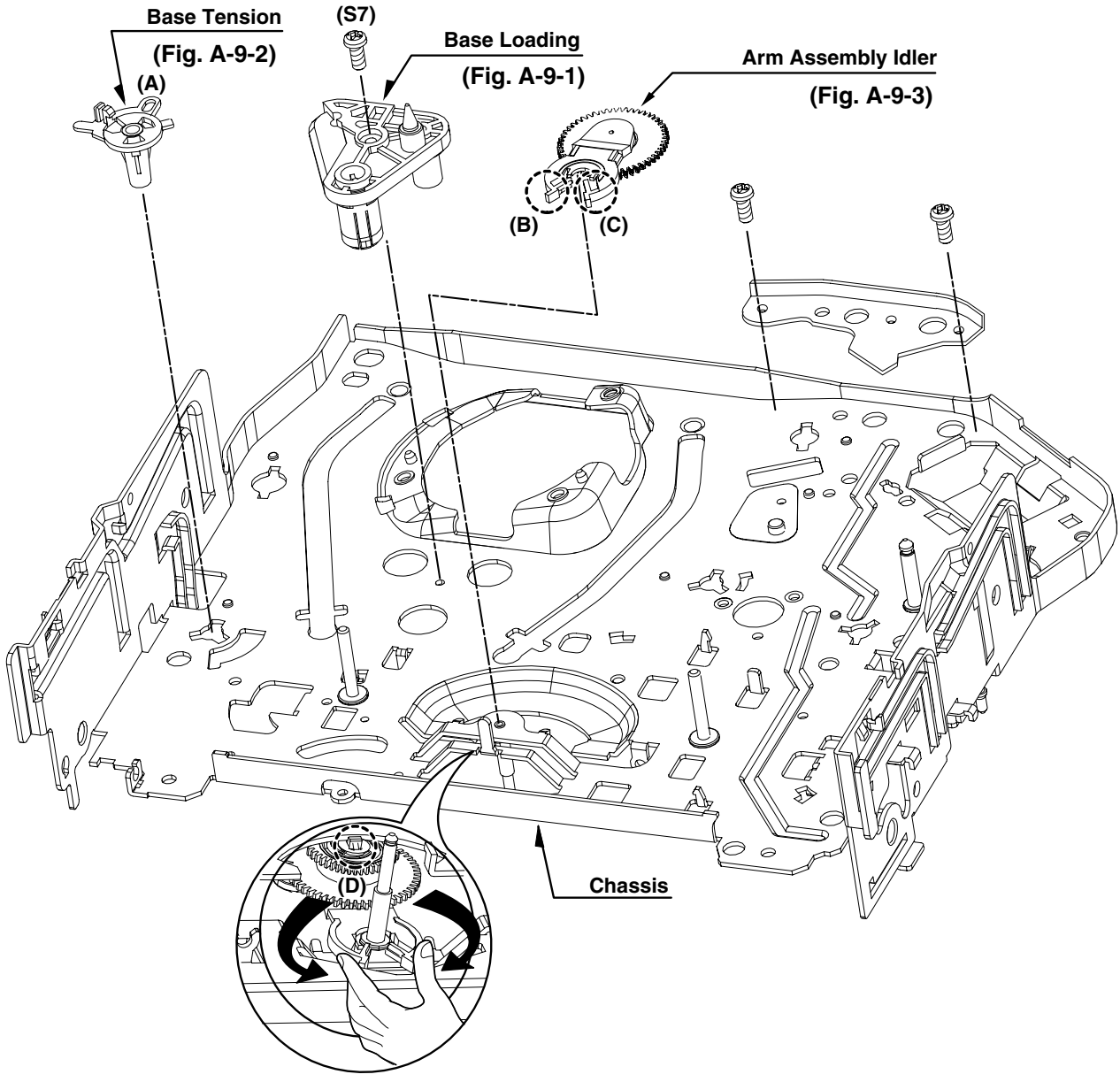


Fig. A-9

31. Base Loading (Fig. A-9-1)

1) Remove the Screw(S7).
2) Lift the Base Loading up.

32. Base Tension (Fig. A-9-2)

1) Breakaway the (A) portion of the Base Tension from the embossing of the Chassis.
2) Turn the Base Tension to counterclockwise direction and lift it up.

33. Arm Assembly Idler (Fig. A-9-3)

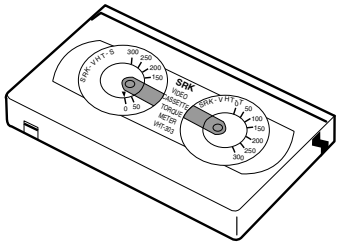
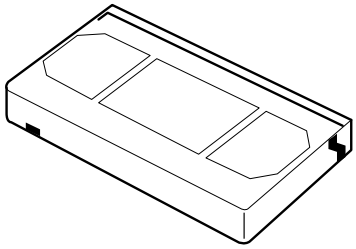
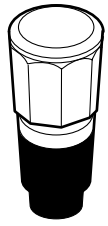
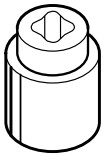
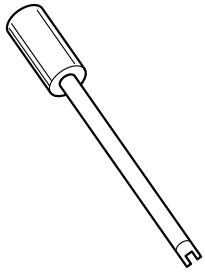
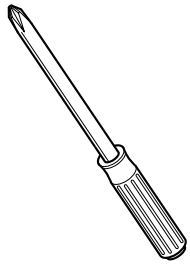
1) Make narrower the two parts, (B) and (C), as Fig. A-9-3.
2) Lift the Arm assembly Idler up.

NOTE

When disassembling, be careful not to be caught the (D) part by the Chassis as Fig.

DECK MECHANISM ADJUSTMENT

• Tools and Fixfures for Service

1. Cassette Torque Meter **SRK-VHT-303(Not SVC part)** **Parts No: D00-D006** 	**2. Alignment Tape** **Parts No NTSC: DTN-001** **PAL:DTN-0002** 	**3. Torque Gauge** **600g.Cm ATG** **Parts No:D00-D002** 
4. Torque Gauge Adaptor **Parts No:D09-R001** 	**5. Post Height Adjusting Driver** **Parts No:DTL-0005** 	**6. + Type Driver (ø 5)** 

DECK MECHANISM ADJUSTMENT

1. Mechanism Alignment Position Check

Purpose:To determine if the Mechanism is in the correct position, when a Tape is ejected.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Check Point
• Blank tape	• Eject Mode (with Cassette ejected)	• Mechanism and Mode Switch Position

1) Turn the Power S/W on and eject the Cassette by pressing the Eject Button.
2) Remove the Top Cover and Plate Assembly Top, visually check if the Gear Cam Hole is aligned with the Chassis Hole as below Fig. C-2.
3) IF not, rotate the Shaft of the Loading Motor to either clockwise or counterclockwise until the alignment is as below Fig. C-2.
4) Remove the Screw which fixes the Deck Mechanism and Main Frame and confirm if the Gear Cam is aligned with the Gear Drive as below Fig. C-1(A).
5) Confirm if the Mode S/W on the Main P.C.Board is aligned as below Fig. C-1(B).
6) Remount the Deck Mechanism on the Main P.C.Board and check each operation.

CHECK DIAGRAM

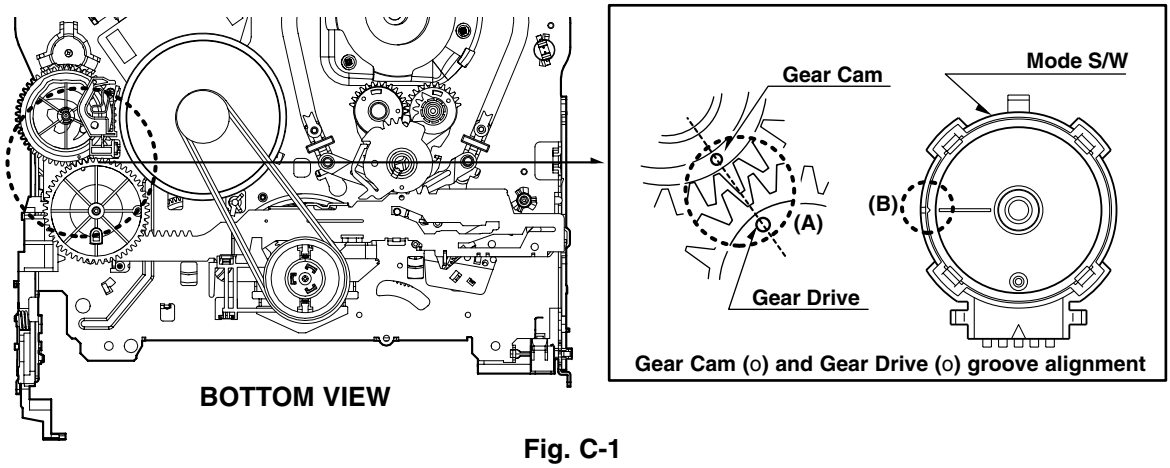


Fig. C-1

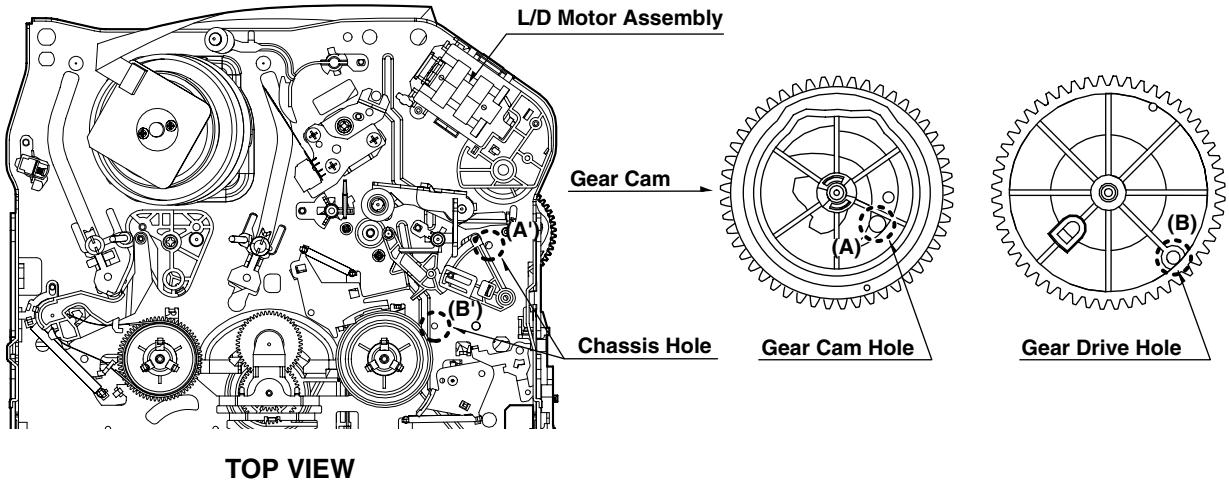


Fig. C-2

DECK MECHANISM ADJUSTMENT

2. Preparation for Adjustment (To set the Deck Mechanism of the loading state without inserting a cassette tape).

1) Unplug the power cord from the AC outlet.
2) Disassemble the Top Cover and Plate Assembly Top.
3) Plug the power cord into the AC outlet.
4) Turn the power S/W on and push the Lever Stopper of the Holder Assembly CST to the back for loading the cassette without tape.
   Cover the holes of the End Sensors at the both sides of the Chassis to prevent a light leak.
   Then the Deck Mechanism drives to the Stop Mode.
   In this case, the Deck Mechanism can accept inputs of each mode, however the Rewind and Review operation can not be performed for more than a few seconds because the Take-up Reel Table is in the Stop State and can not be detected the Reel Pulses.

3. Checking Torque

Purpose: To insure smooth transport of the tape during each mode of operation.
If the tape transport is abnormal, then check the torque as indicated by the chart below.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Checking Method
• Torque Gauge(600g/cm ATG) • Torque Gauge Adaptor • Cassette Torque Meter SRK-VHT-303	• Play (FF) or Review (REW) Mode	• Perform each Deck Mechanism mode without inserting a cassette tape(Refer to above No.2 Preparation for Adjustment). • Read the measurement of the Take-up or Supply Reels on the Cassette Torque Meter(Fig. C-3-2). • Attach the Torque Gauge Adaptor to the Torque Gauge and then read the value of it(Fig. C-3-1).

Item	Mode	Test Equipment	Measurement Reel	Measurement Values
Fast Forward Torque	Fast Forward	Cassette Torque Gauge	Take-Up Reel	More than 400g/cm
Rewind Torque	Rewind	Cassette Torque Gauge	Supply Reel	More than 400g/cm
Play Take-Up Torque	Play	Cassette Torque Meter	Take-Up Reel	40~100g/cm
Review Torque	Review	Cassette Torque Meter	Supply Reel	120~210g/cm

NOTE:

The values are measured by using a Torque Gauge and Torque Gauge Adaptor with the Torque Gauge affixed.

NOTE:

The torque reading to measure occurs when the tape abruptly changes direction from Fast Forward to Rewind Mode, when quick braking is applied to both Reels.

• Torque Gauge (600g.cm ATG)

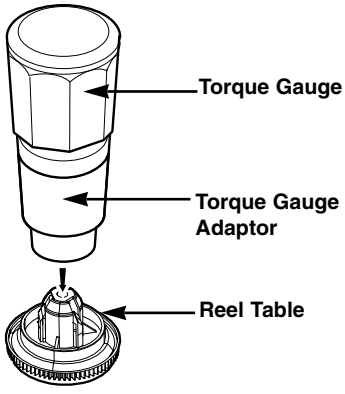


Fig. C-3-1

• Cassette Torque Meter (SRK-VHT-303)

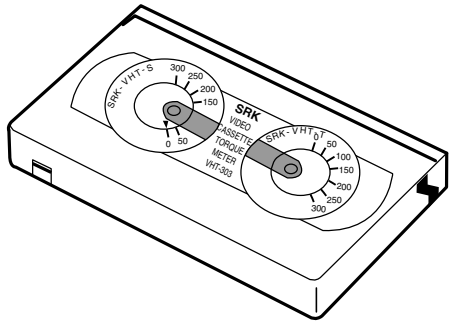


Fig. C-3-2

DECK MECHANISM ADJUSTMENT

4.Guide Roller Height Adjustment

Purpose: To regulate the height of the tape so that the bottom of the tape runs along the tape guide line on the Lower Drum.

4-1. Preliminary Adjustment

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
• Post Height Adjusting Driver	• Play or Review Mode	• Guide Roller Height Adjustment screws on the Supply and Take-Up Guide Rollers.

Adjustment Procedure

1) Confirm if the tape runs along the tape guide line of the Lower Drum.
2) If the tape runs the bottom of the guide line, turn the Guide Roller Height Adjustment Screw to clockwise direction.
3) If it runs the top, turn to counterclockwise direction.
4) Adjust the height of the Guide Roller to be guided to the guide line of the Lower Drum from the starting and ending point of the Drum.

ADJUSTMENT DIAGRAM

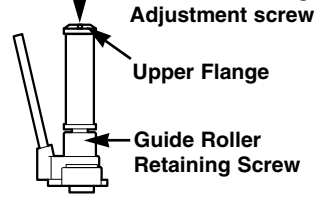


Fig. C-4-1

4-2. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	Test Conditions VCR(VCP) State	Adjustment Point
• Oscilloscope • Alignment Tape • Post Height Adjusting Driver	• CH-1:PB RF Envelope • CH-2:NTSC: SW 30Hz PAL: SW 25Hz • Head Switching Output Point • RF Envelope Output Point	• Play an Alignment Tape	• Guide Roller Height Adjustment Screws

Adjustment Procedure

1) Play an Alignment Tape after connecting the probe of the Oscilloscope to the RF Envelope Output Test Point and Head Switching Output Test Point.
2) Tracking Control(in PB Mode) : Center Position(When this adjustment is performed after the Drum Assembly has been replaced, set the Tracking Control so that the RF Output is Maximum).
3) Height Adjustment Screw : Flatten the RF waveform. (Fig. C-4-2)
4) Turn(Move) the Tracking Control(in PB Mode) clockwise and counterclockwise.(Fig. C-4-3)
5) Check that any drop of RF Output is uniform at the start and end of the waveform.

NOTE

If the adjustment is excessive or insufficient the tape will jam or fold.

Waveform Diagrams

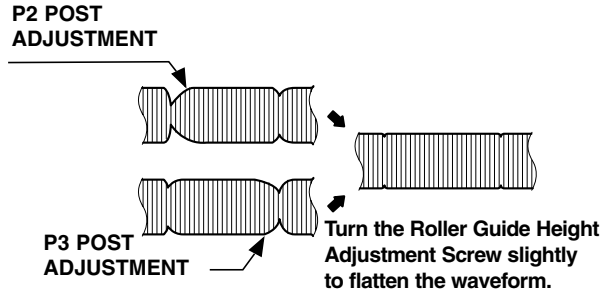


Fig. C-4-2

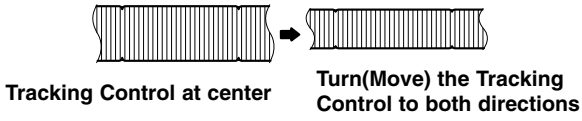
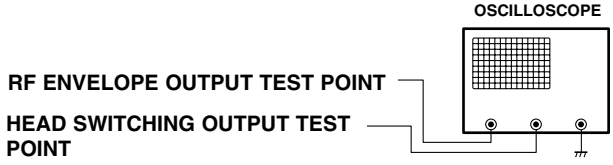


Fig. C-4-3

Connection Diagram



DECK MECHANISM ADJUSTMENT

5. Audio/Control (A/C) Head Adjustment

Purpose: To insure that the tape passes accurately over the Audio and Control Tracks in exact alignment of the both Record and Playback Modes.

5-1. Preliminary Adjustment (Height and Tilt Adjustment)
Perform the Preliminary Adjustment, when there is no Audio Output Signal with the Alignment Tape.

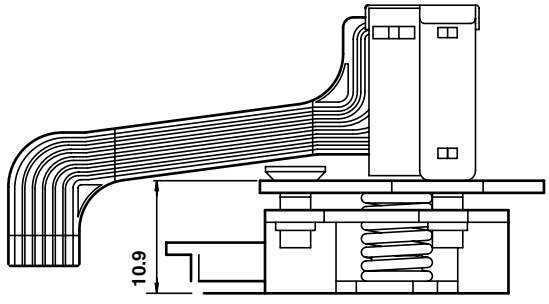
Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
• Blank Tape • Screw Driver(+) Type 5mm	• Play the blank tape	• Tilt Adjustment Screw(C) • Height Adjustment Screw(B) • Azimuth Adjustment Screw(A)

Adjustment Procedure/Diagrams

1) Initially adjust the Base Assembly A/C Head as shown Fig. C-5-1 by using the Height Adjustment Screw(B).
2) Play a blank tape and observe if the tape passes accurately over the A/C Head without tape curling or folding.
3) If folding or curling is occured then adjust the Tilt Adjustment Screw(C) while the tape is running to resemble Fig. C-5-3.
4) Reconfirm the tape path after Playback about 4~5 seconds.

NOTE

Ideal A/C head height occurs when the tape runs between 0.2~0.25mm above the bottom edge of the A/C Head core.



A/C Head Base

Fig. C-5-1

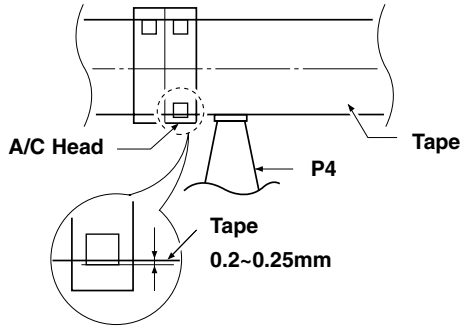
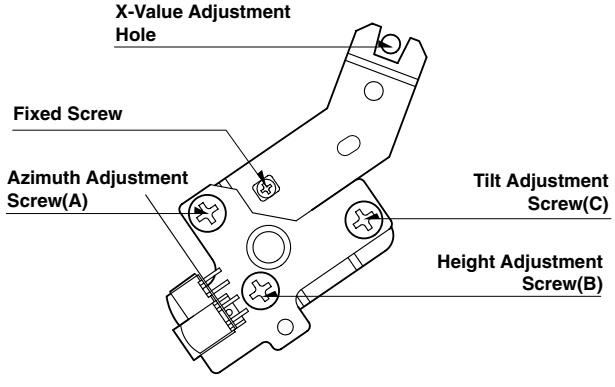


Fig. C-5-3



A/C Head Assembly

Fig. C-5-2

5-2. Confirm that the tape passes smoothly between the Take-up Guide and Pinch Roller(using a mirror or the naked eye).

1) After completing Step 5-1.(Preliminary Adjustment), check that the tape passes around the Take-up Guide and Pinch Roller without folding or curling at the top or bottom.
   (1) If folding or curling is observed at the bottom of the Take-up Guide then slowly turn the Tilt Adjustment Screw(C) in the clockwise direction.
   (2) If folding or curling is observed at the top of it then slowly turn the Tilt Adjustment Screw(C) in the counterclockwise direction.

NOTE:

Check the RF envelope after adjusting the A/C Head, if the RF waveform differs from Fig. C-5-4, performs Precise Adjustment to flat the RF waveform.

5-3. Precise Adjustment (Azimuth adjustment)

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
• Oscilloscope • Alignment Tape(SP) • Screw Driver(+) Type 5mm	• Audio output jack	• Play an Alignment Tape 1KHz, 7KHz Sections	• Azimuth Adjustment Screw(A) • Height Adjustment Screw(B)

Adjustment Procedure

1) Connect the probe of the oscilloscope to Audio Output Jack.
2) Alternately adjust the Azimuth Adjustment Screw(A) and the Tilt Adjustment Screw(C) for maximum output of the 1KHz and 7KHz segments, while maintaining the flattest envelope differential between the two frequencies.

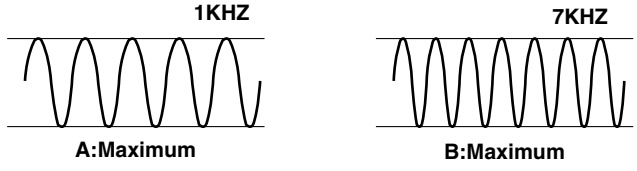
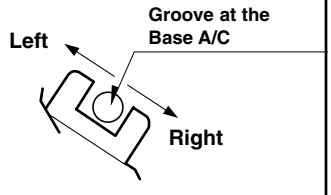


Fig. C-5-4

6. X-Value Adjustment

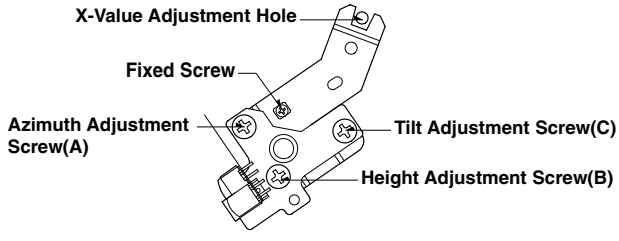
Purpose: To obtain compatibility with the other VCR(VCP) Models.

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
• Oscilloscope • Alignment Tape(SP only) • Screw Driver(+) Type 5mm	• CH-1: PB RF Envelope • CH-2: NTSC: SW 30Hz PAL: SW 25Hz • Head Switching Output Test Point • RF Envelope Output Test Point	• Play an Alignment Tape	

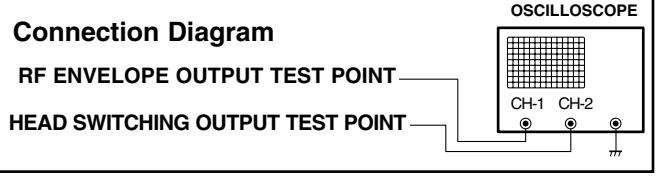
Adjustment Procedure

1) Release the Automatic Tracking to run long enough for tracking to complete it's cycle.
2) Loosen the Fixed Mounting Screw and move the Base Assembly A/C Head in the direction as shown in the diagram to find the center of the peak that allows for the maximum waveform envelope.
   This method should allow the 31µm Head to be centrally located over the 58µm tape track.
3) Tighten the Base Assembly A/C Head mounting Screw.

Adjustment Diagram



Connection Diagram



DECK MECHANISM ADJUSTMENT

7. Adjustment after Replacing Drum Assembly (Video Heads)

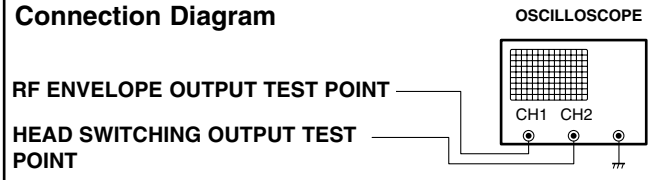
Purpose: To correct for shift in the Roller Guide and X value after replacing the Drum.

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Points
• Oscilloscope • Alignment Tapes • Blank Tape • Post Height Adjusting Driver • Screw Driver(+) Type 5mm	• CH-1: PB RF Envelope • CH-2: NTSC: SW 30Hz PAL: SW 25Hz • Head Switching Output Test Point • RF Envelope Output Test Point	• Play the Blank Tape • Play an Alignment Tape	• Guide Roller Precise Adjustment • Switching Point • Tracking Preset • X-Value

Checking/Adjustment Procedure

Play a blank tape and check for tape curling or creasing around the Roller Guide. If there is a problem then follow the procedure 4. "Guide Roller Height" and 5. "Audio Control(A/C) Head Adjustment".

Connection Diagram



Waveform

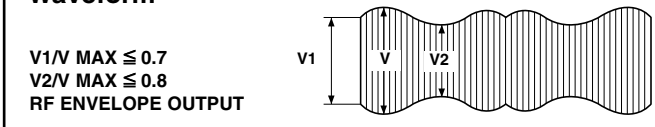


Fig. C-7

8. Check the Tape Travel after Reassembling Deck Assembly.

8-1. Checking Audio and RF Locking Time during playback and after CUE or REV (FF/REW)

Test Equipment/ Fixture	Specification	Connection Points	Test Conditions (Mechanism Condition)
• Oscilloscope • Alignment Tapes(with 6H 3KHz Color Bar Signal) • Stop Watch	• RF Locking Time: Less than 5 sec. • Audio Locking Time:Less than 10sec	• CH-1: PB RF Envelope • CH-2: Audio Output • RF Envelope Output Point • Audio Output Jack	• Play an Alignment Tape (with 6H 3kHz Color Bar Signal)

Checking Procedure

Play an Alignment Tape then change the operating mode to CUE or REV and confirm if the unit meets the above listed specifications.

NOTES:

1) CUE is the forward search mode
2) REV is the backward search mode
3) Refer to the Play mede

8-2. Checking for tape curling or jamming

Test Equipment/ Fixture	Specification	Test Conditions (Mechanism Condition)
• T-160 Tape • T-120 Tape	• Be sure there is no tape jamming or curling at the begining, middle or end of the tape.	• Run the CUE, REV, Play mode at the beginning and the end of the tape.

Checking Procedure

1) Confirm that the tape runs smoothly around the roller guides, Drum and A/C Head Assemblies while abruptly changing operating modes from Play to CUE or REV. This is to be checked at the begining, middle and end sections of the tape.
2) Confirm that the tape passes over the A/C Head Assembly as indicated by proper audio reproduction and proper tape counter performance.

1. Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit.
Check with the customer to find out how often the unit is used, and then determine that the unit is ready for inspection and maintenance. Check the following parts.

Phenomenon	Inspection	Replacement	
Color beats	Dirt on Full-Erase Head	o	F/E Head
Poor S/N, no color	Dirt on Video Head	o	Video Head
Vertical or Horizontal jitter	Dirt on Video Head Dirt on tape transport system	o	
Low volume, Sound distorted	Dirt on Audio/Control Head	o	A/C Head
Tape does not run. Tape is slack	Dirt on Pinch Roller	o	Pinch Roller Belt Capston
In Review and Unloading (off mode), the tape is rolled up loosely.	Clutch Assembly D35 torque reduced	o	Clutch Assembly D35
	Cleaning Drum and transport system	Fig. C-9-3	

NOTE

If locations marked with **o** do not operate normally after cleaning, check for wear and replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations and see the Greasing (Page 4-21, 22) for the sections to be lubricated and greased.

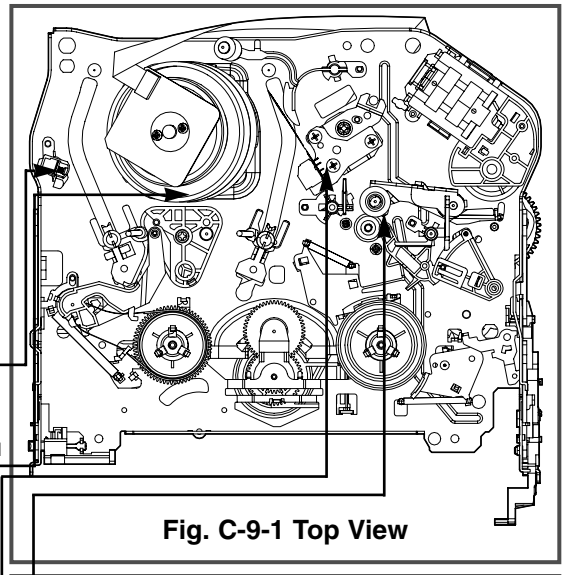


Fig. C-9-1 Top View

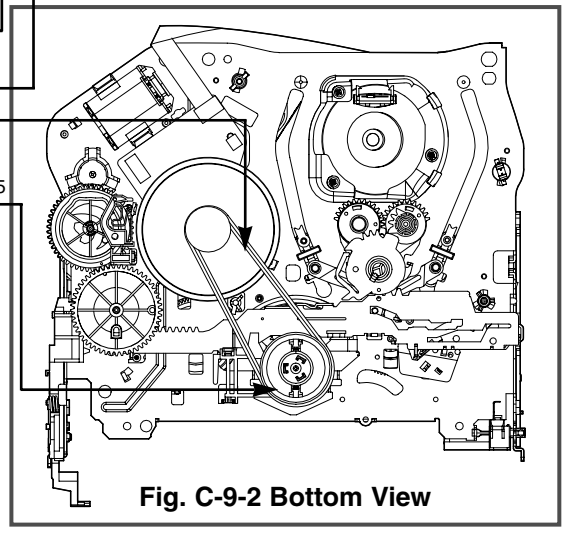


Fig. C-9-2 Bottom View

*** No. (1)~(12) Indicates the Tape Path to be traveled from Supply Reel to Take-up Reel.**

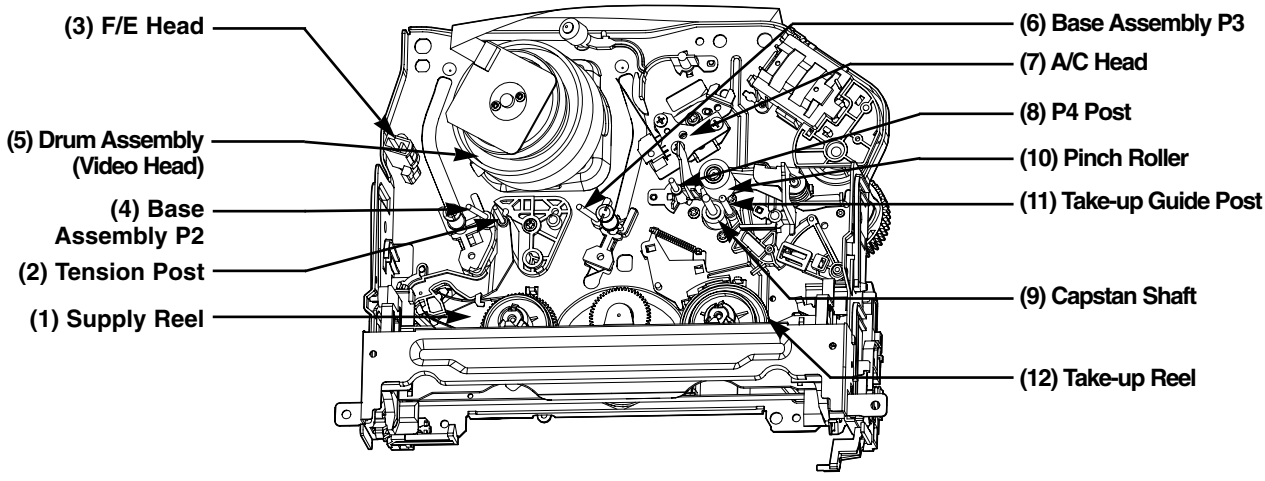


Fig. C-9-3 Tape Transport System

2. Required Maintenance

The recording density of a VCR(VCP) is much higher than that of an audio tape recorder. VCR(VCP) components must be very precise, at tolerances of 1/1000mm, to ensure compatibility with the other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, is necessary.

3. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR(VCP), and the environment in which the VCR(VCP) is used.
But, in general home use, a good picture will be maintained if inspection and maintenance is made every 1,000 hours. The table below shows the relation between time used and inspection period.

Table 1

When inspection is necessary / Average hours used per day	About 1 year	About 18 months	About 3 years
One hour	■	■	■
Two hours	■	■	
Three hours	■		

4. Supplies Required for Inspection and Maintence

(1) Grease : Kanto G-311G (Blue) or equivalent
(2) Isopropyl Alcohol or equivalent
(3) Cleaning Patches
(4) Grease : Kanto G-381(Yellow)

5. Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head
First use a cleaning tape. If the dirt on the head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with Isopropyl Alcohol. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.
(Do not move the cleaning patch vertically. Make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.)
Thoroughly dry the head. Then run the test tape. If Isopropyl Alcohol remains on the video head, the tape may be damaged when it comes into contact with the head surface.
(2) Clean the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with Isopropyl Alcohol.

NOTES:

① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which moves the tape.
② Make sure that during cleaning you do not touch the tape transport system with excessive force that would cause deformation or damage to the system.

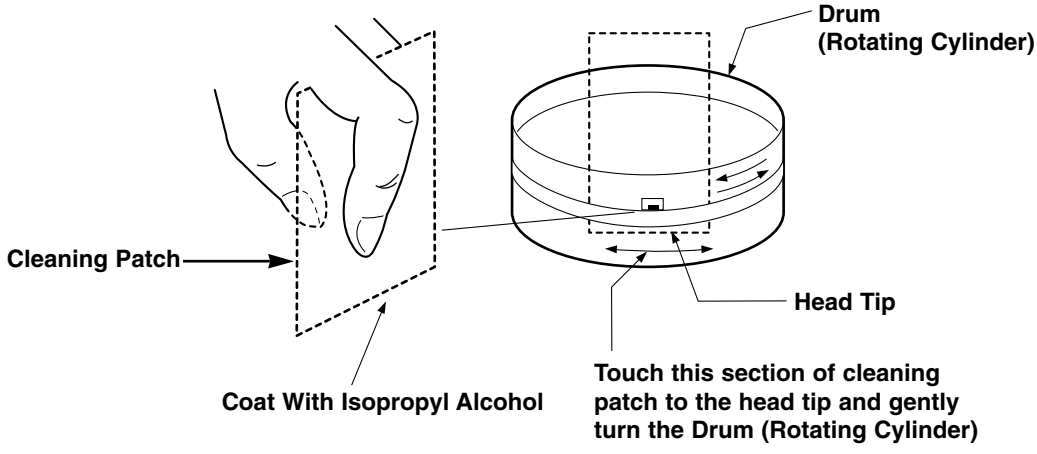

Drum
(Rotating Cylinder)
Cleaning Patch
Head Tip
Coat With Isopropyl Alcohol
Touch this section of cleaning patch to the head tip and gently turn the Drum (Rotating Cylinder)

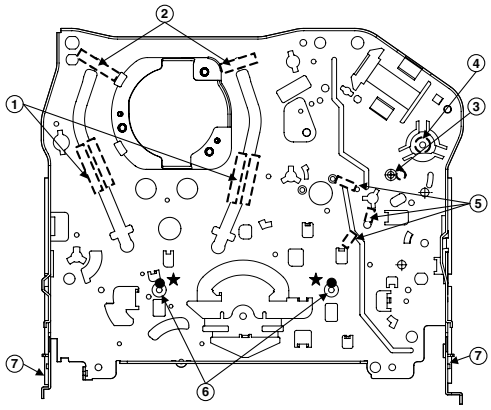
Fig. C-9-4

5-2) Greasing

(1) Greasing guidelines
Apply grease, with a cleaning patch. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe excessive grease and clean with cleaning patch wetted in Isopropyl Alcohol.

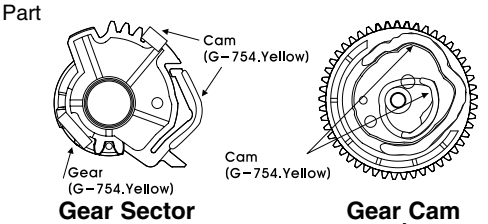
NOTE:Greasing Points

1) Loading Path Inside & Top side
2) Base Assembly P2, P3 stopper
3) Shaft
4) L/D Motor Gear Wheel Part
5) Arm Take-up Rubbing Sections
6)Reel S,T shaft(G381:Yellow)
7) Arm Assembly F/L Rotating Sections

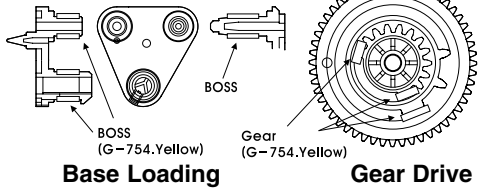


Chassis (Top)

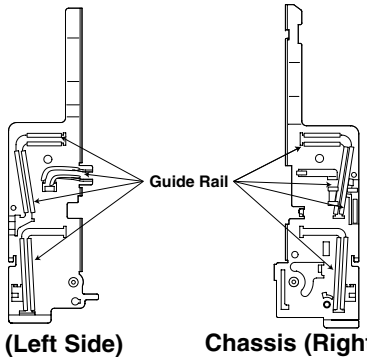
Gear Part



Gear Sector **Gear Cam**



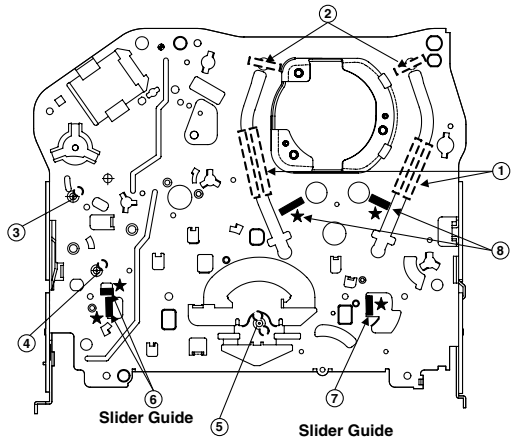
Base Loading **Gear Drive**



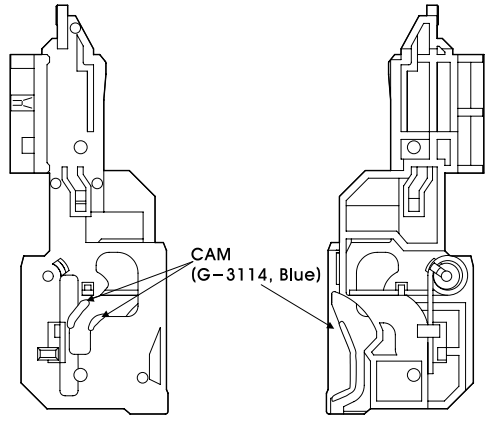
Chassis (Left Side) **Chassis (Right Side)**

(2) Periodic greasing
Grease specified locations every 5,000 hours.

1) Loading Path Inside & Top side
2) Base Assembly P2,P3 stopper
3) Shaft
4) Shaft
5) Clutch Assembly D35 Shaft
6) Plate Slider Guide Sections
7) Plate Slider Guide Sections
8) Gear Assembly P2, P2 Rubbing Sections



Chassis (Bottom)



Gear Rack F/L

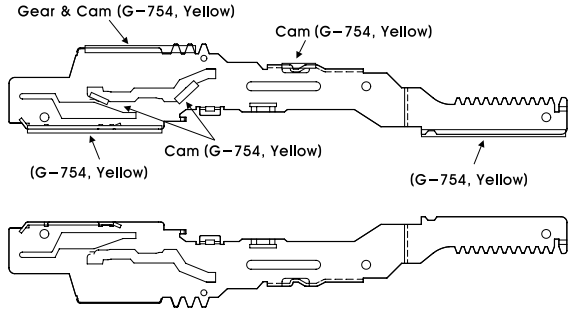
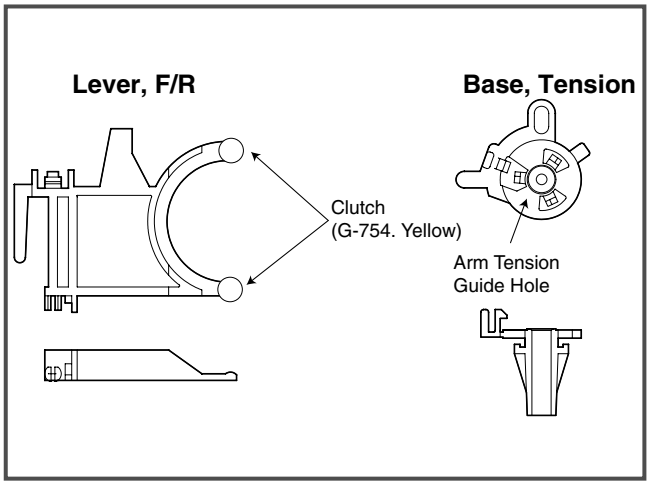
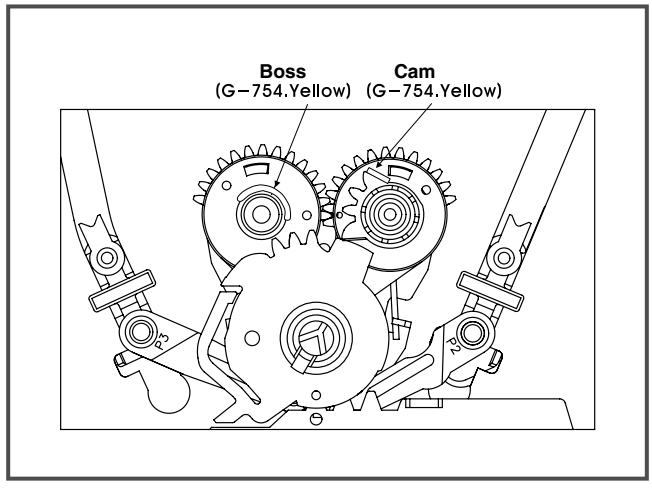


Plate Slider

Lever, F/R, Base, Tension



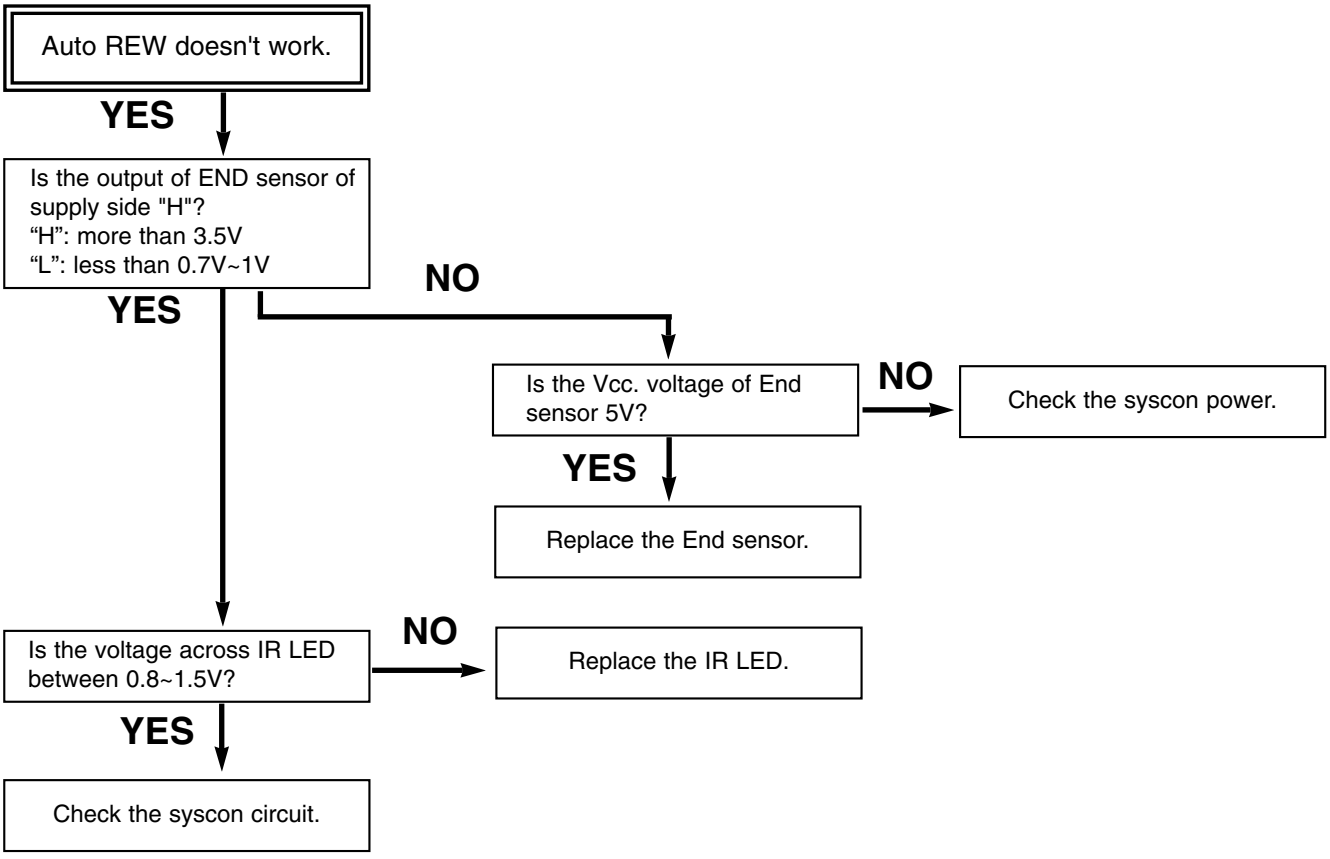
GEAR AY, P2 & P3



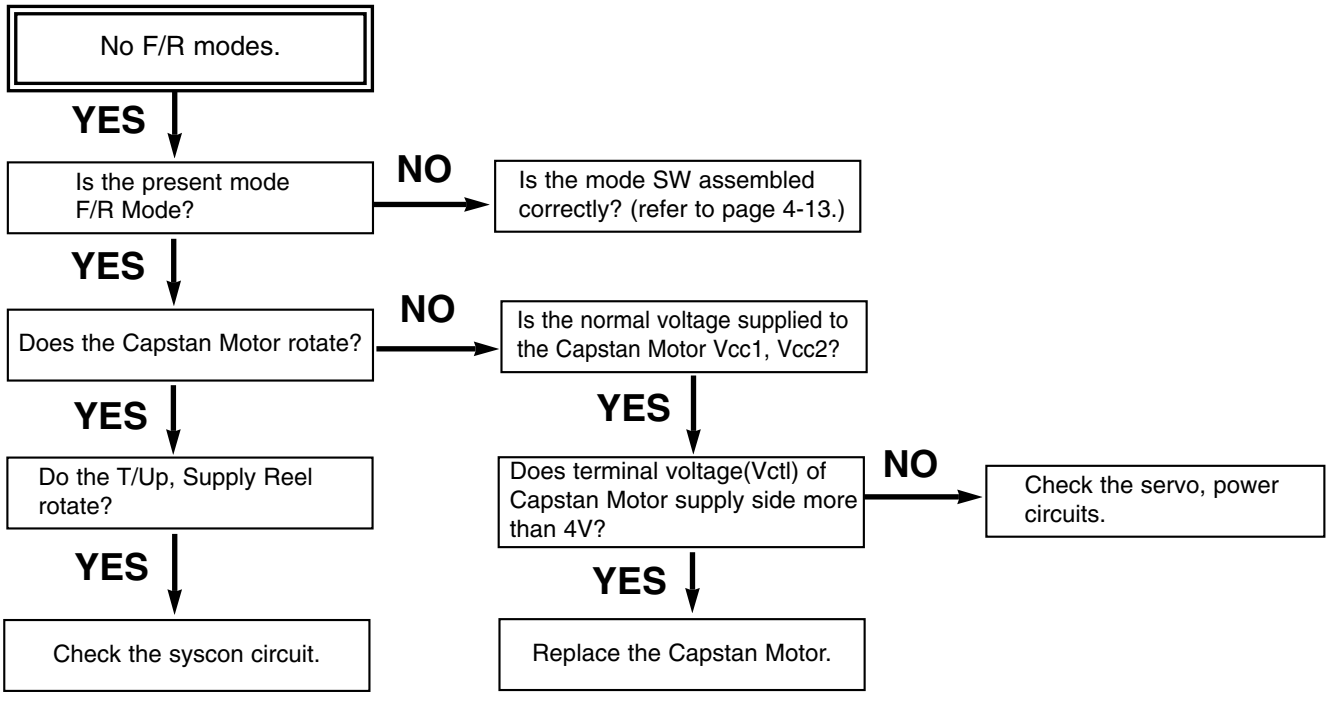
MECHANISM TROUBLESHOOTING GUIDE

1.Deck Mechanism

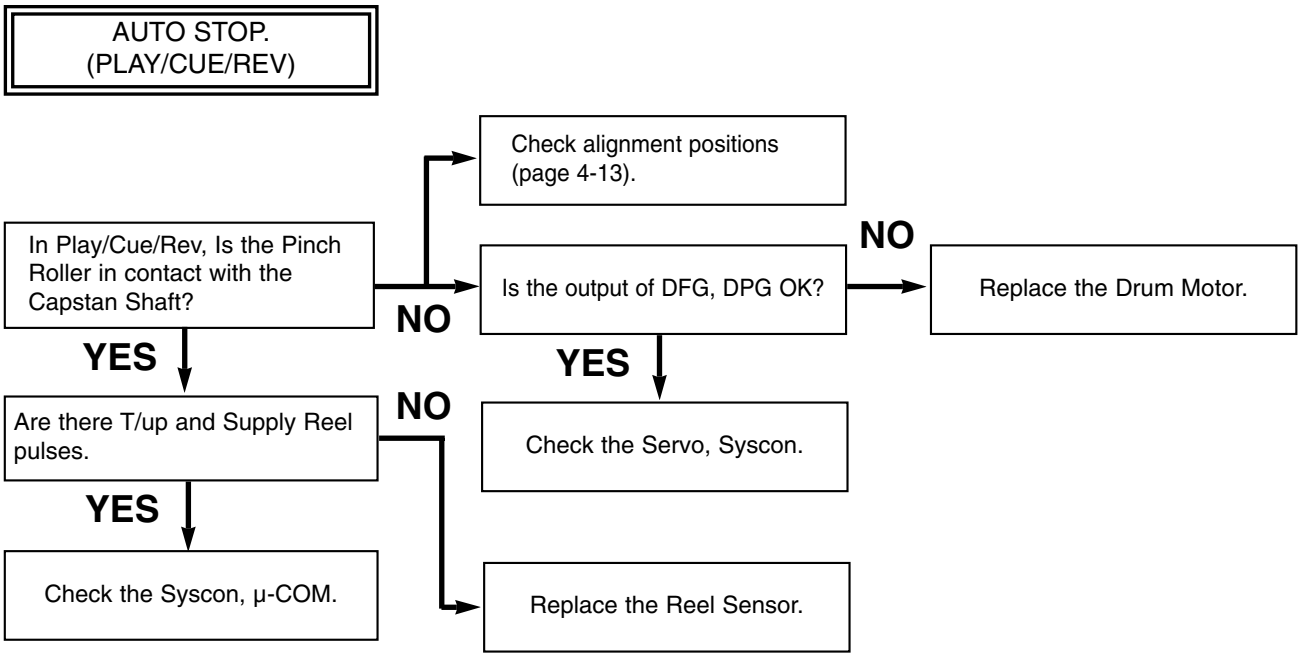
A.



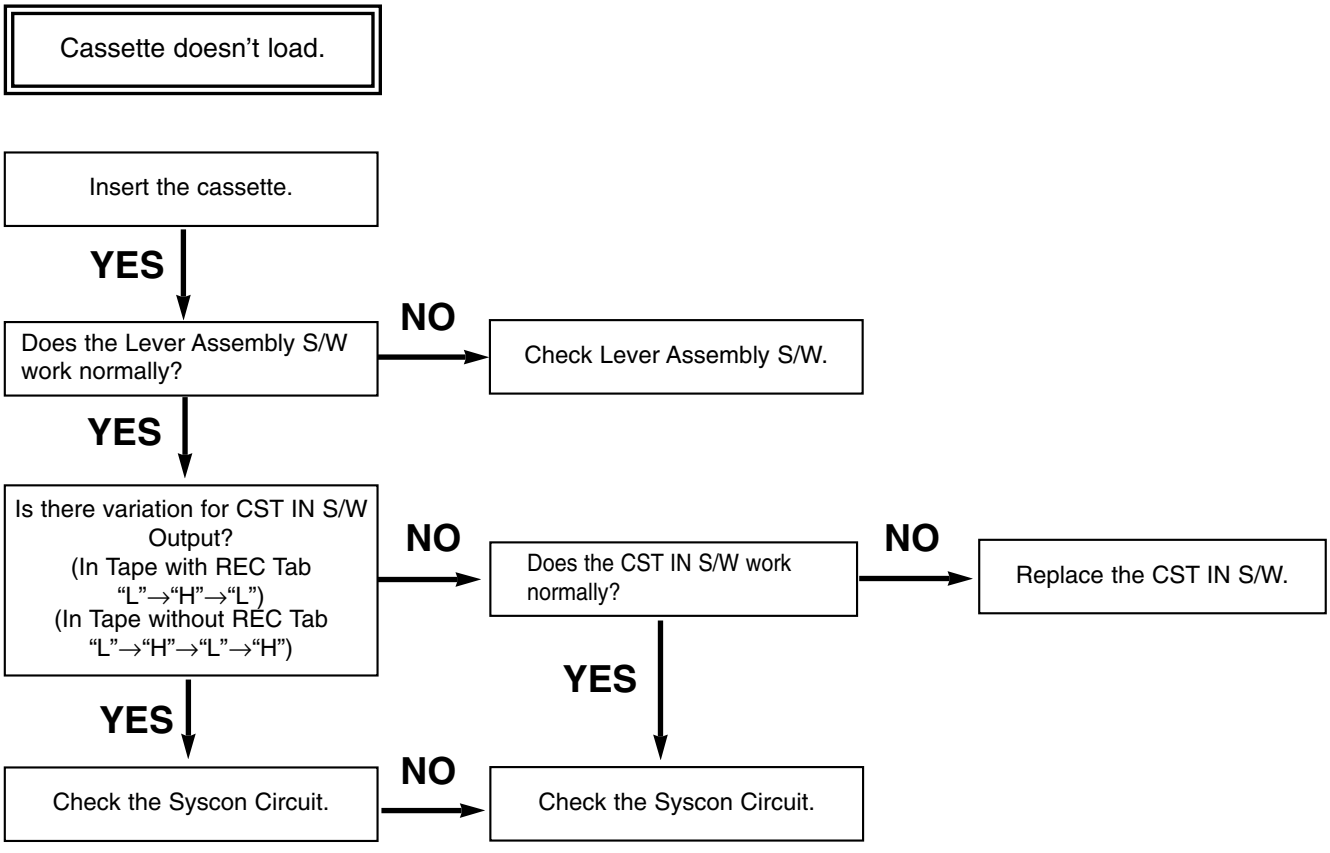
B.



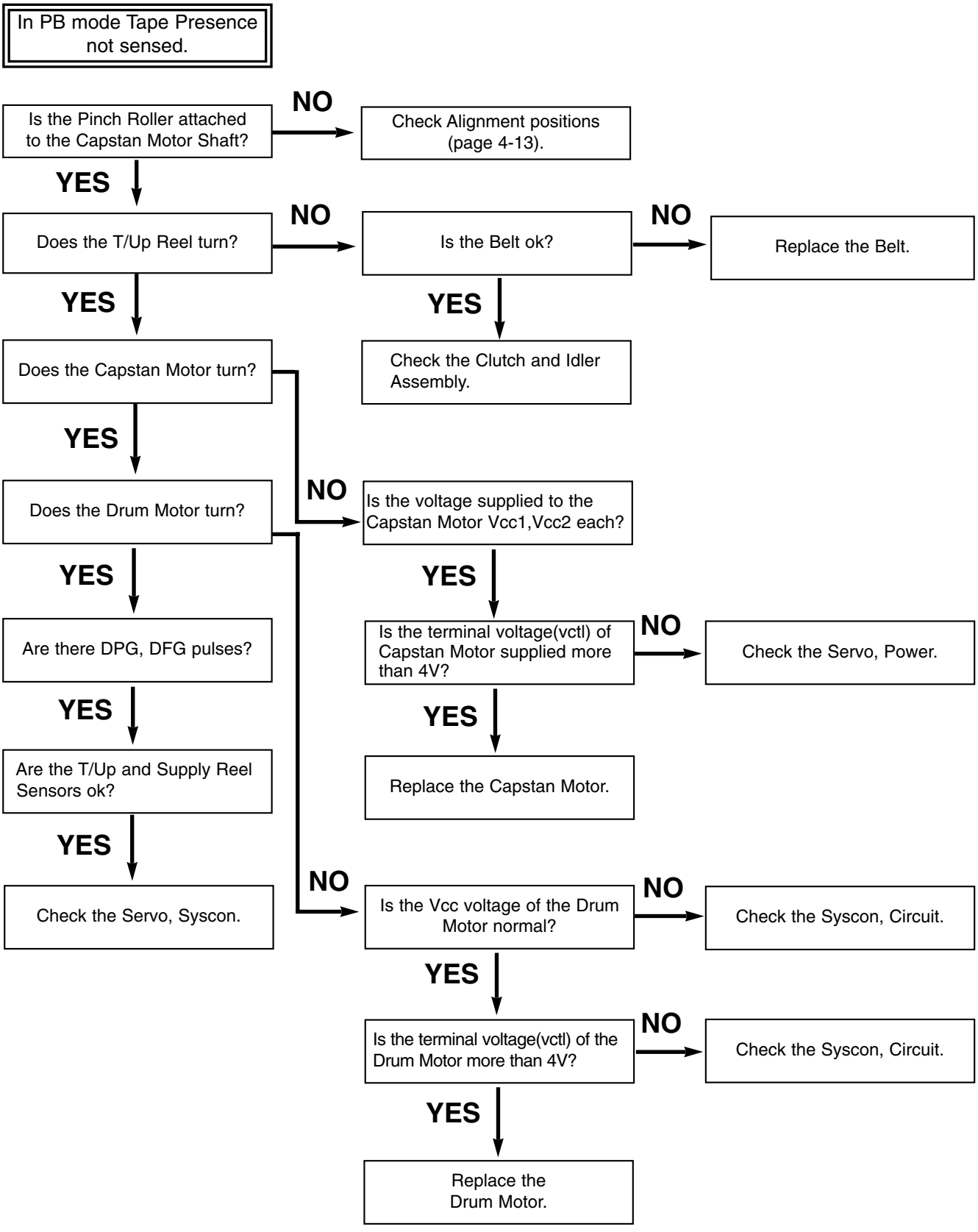
C.


AUTO STOP.
(PLAY/CUE/REV)
In Play/Cue/Rev, Is the Pinch Roller in contact with the Capstan Shaft?
NO
Check alignment positions (page 4-13).
Is the output of DFG, DPG OK?
NO
Replace the Drum Motor.
YES
YES
Are there T/up and Supply Reel pulses.
NO
Check the Servo, Syscon.
YES
Check the Syscon, µ-COM.
Replace the Reel Sensor.

D.

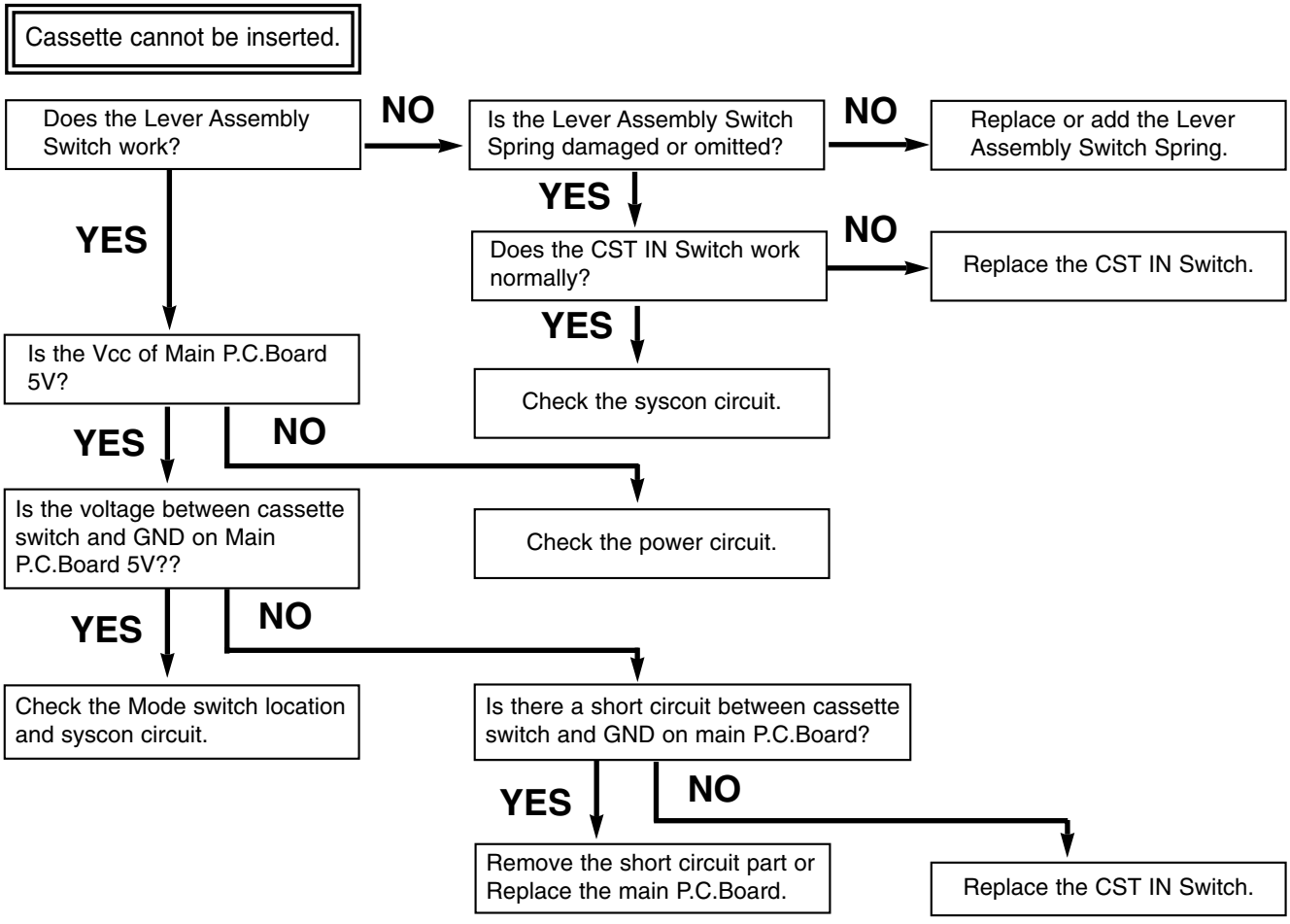

Cassette doesn't load.
Insert the cassette.
YES
Does the Lever Assembly S/W work normally?
NO
Check Lever Assembly S/W.
YES
Is there variation for CST IN S/W Output?
(In Tape with REC Tab
"L"→"H"→"L")
(In Tape without REC Tab
"L"→"H"→"L"→"H")
NO
Does the CST IN S/W work normally?
NO
Replace the CST IN S/W.
YES
YES
Check the Syscon Circuit.
NO
Check the Syscon Circuit.

E.

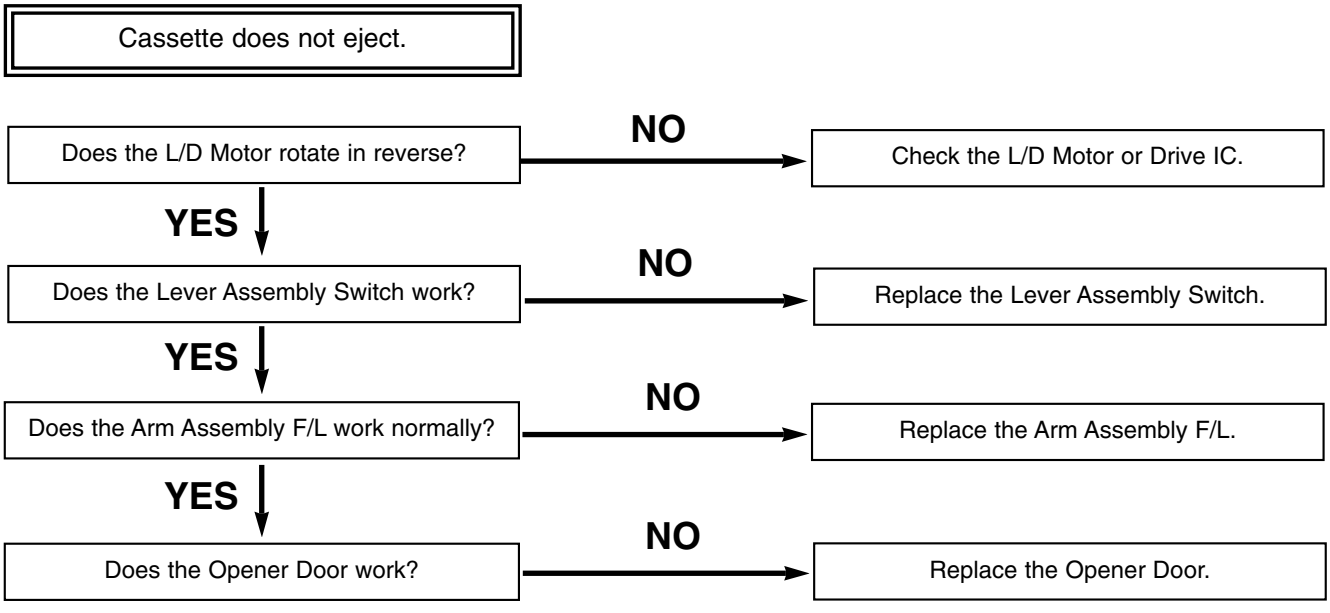

In PB mode Tape Presence not sensed.
Is the Pinch Roller attached to the Capstan Motor Shaft?
NO
Check Alignment positions (page 4-13).
YES
Does the T/Up Reel turn?
NO
Is the Belt ok?
NO
Replace the Belt.
YES
YES
Check the Clutch and Idler Assembly.
Does the Capstan Motor turn?
YES
Does the Drum Motor turn?
NO
Is the voltage supplied to the Capstan Motor Vcc1,Vcc2 each?
YES
YES
Are there DPG, DFG pulses?
Is the terminal voltage(vctl) of Capstan Motor supplied more than 4V?
NO
Check the Servo, Power.
YES
YES
Are the T/Up and Supply Reel Sensors ok?
Replace the Capstan Motor.
YES
NO
Check the Servo, Syscon.
Is the Vcc voltage of the Drum Motor normal?
NO
Check the Syscon, Circuit.
YES
Is the terminal voltage(vctl) of the Drum Motor more than 4V?
NO
Check the Syscon, Circuit.
YES
Replace the Drum Motor.

2. Front Loading Mechanism

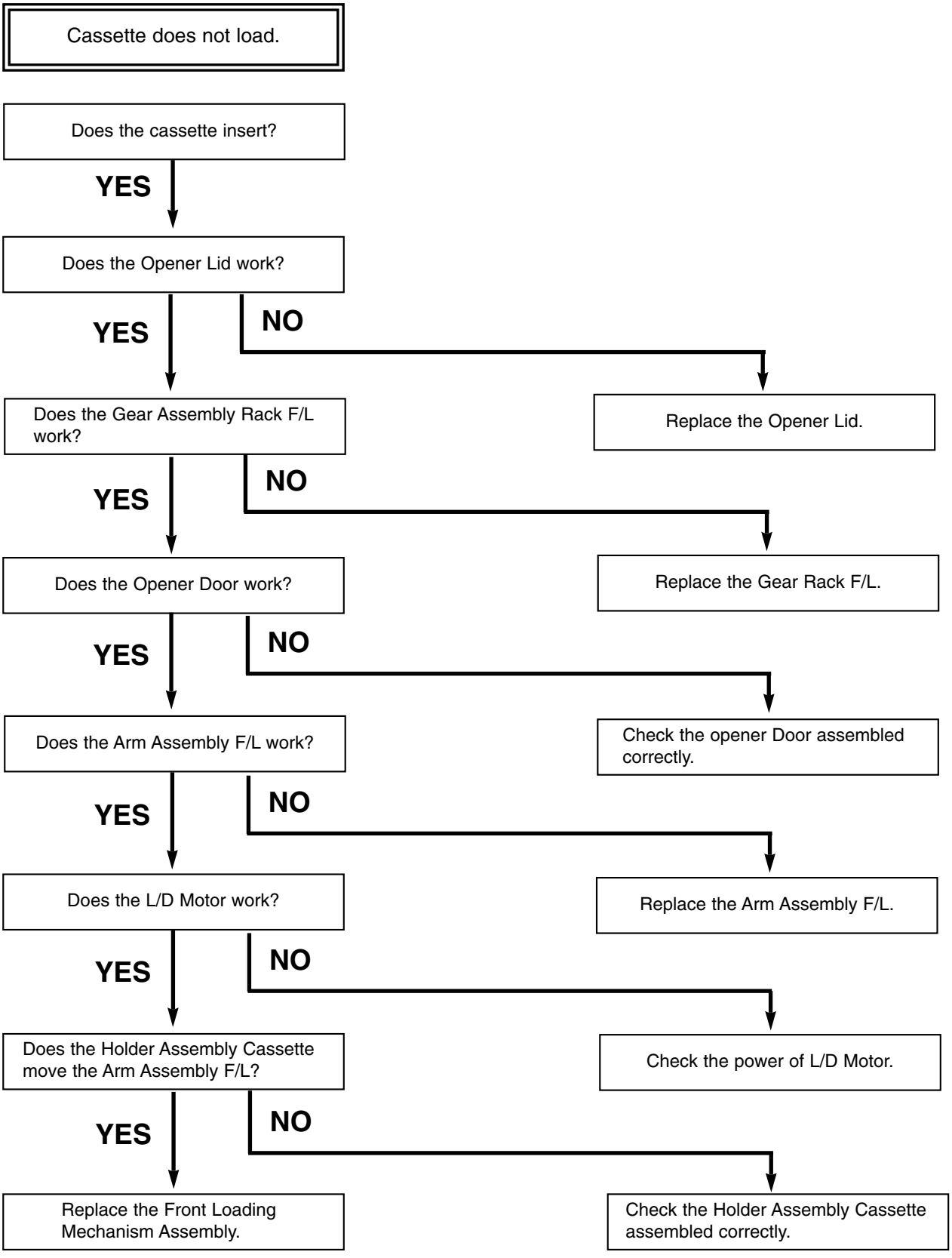
A.


Cassette cannot be inserted.
Does the Lever Assembly Switch work?
NO
Is the Lever Assembly Switch Spring damaged or omitted?
NO
Replace or add the Lever Assembly Switch Spring.
YES
YES
Does the CST IN Switch work normally?
NO
Replace the CST IN Switch.
YES
Is the Vcc of Main P.C.Board 5V?
Check the syscon circuit.
YES
NO
Is the voltage between cassette switch and GND on Main P.C.Board 5V??
Check the power circuit.
YES
NO
Check the Mode switch location and syscon circuit.
Is there a short circuit between cassette switch and GND on main P.C.Board?
YES
NO
Remove the short circuit part or Replace the main P.C.Board.
Replace the CST IN Switch.

B.

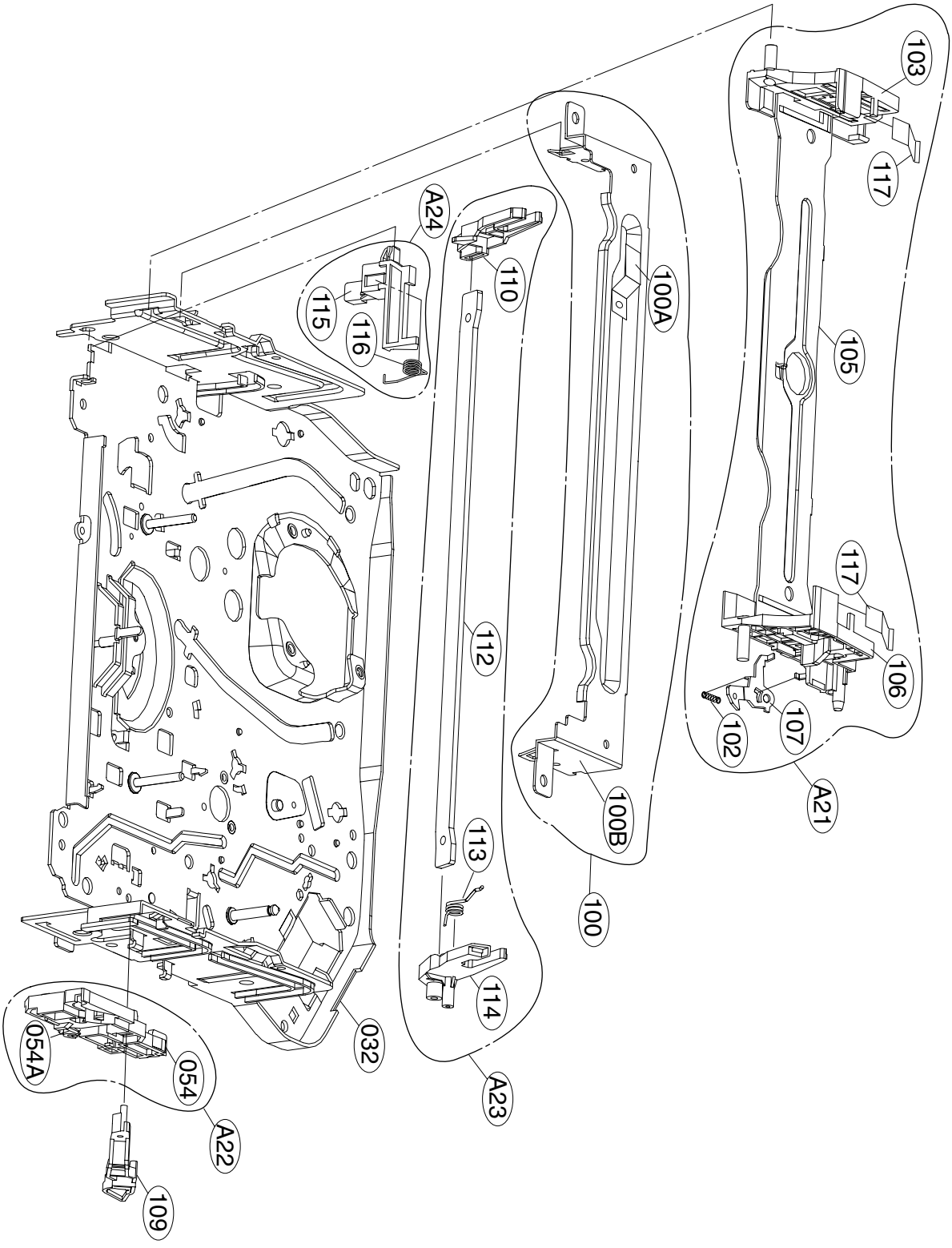


C.


Cassette does not load.
Does the cassette insert?
YES
Does the Opener Lid work?
YES
NO
Replace the Opener Lid.
Does the Gear Assembly Rack F/L work?
YES
NO
Replace the Gear Rack F/L.
Does the Opener Door work?
YES
NO
Check the opener Door assembled correctly.
Does the Arm Assembly F/L work?
YES
NO
Replace the Arm Assembly F/L.
Does the L/D Motor work?
YES
NO
Check the power of L/D Motor.
Does the Holder Assembly Cassette move the Arm Assembly F/L?
YES
NO
Check the Holder Assembly Cassette assembled correctly.
Replace the Front Loading Mechanism Assembly.

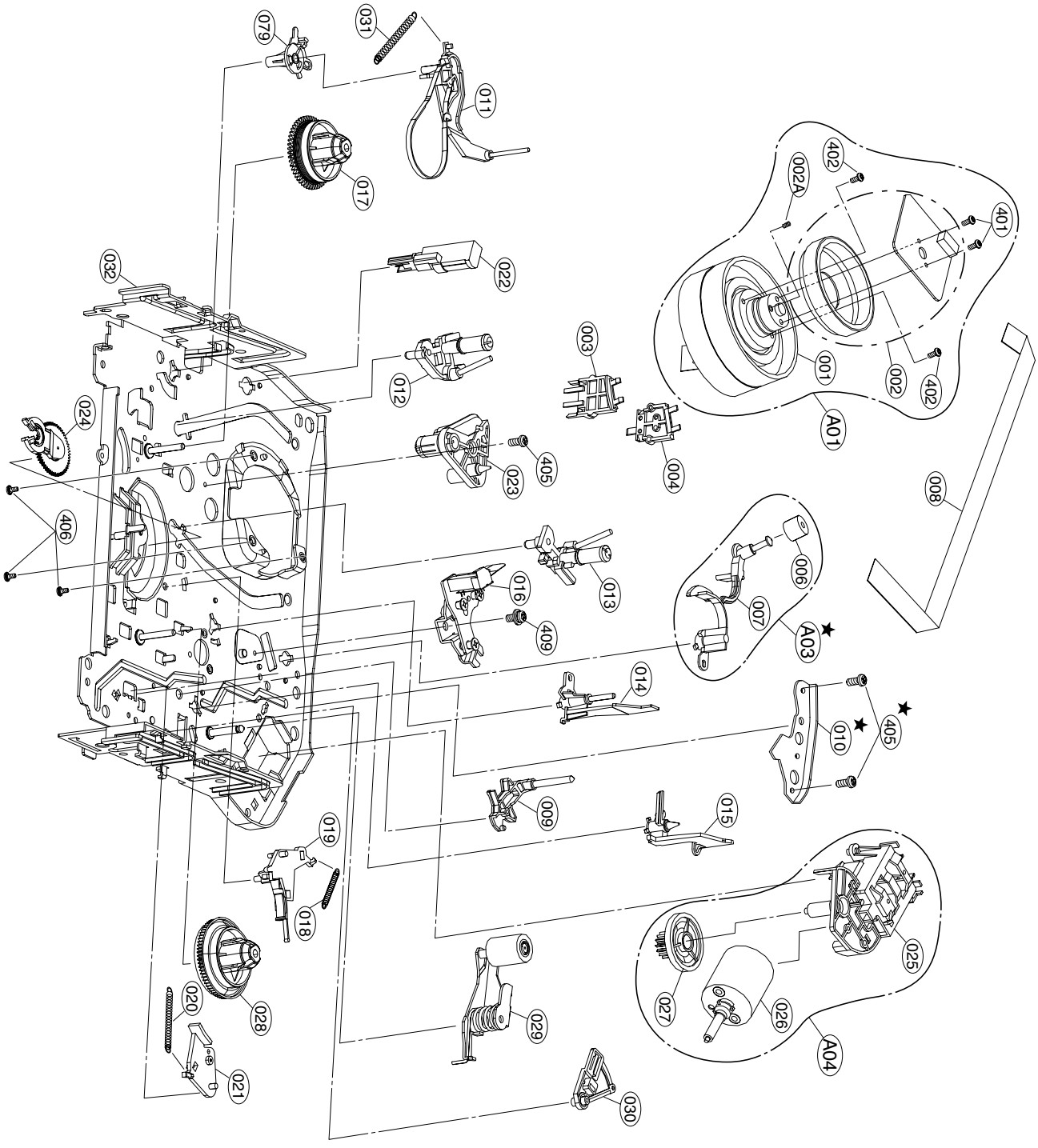
EXPLODED VIEWS

1. Front Loading Mechanism Section

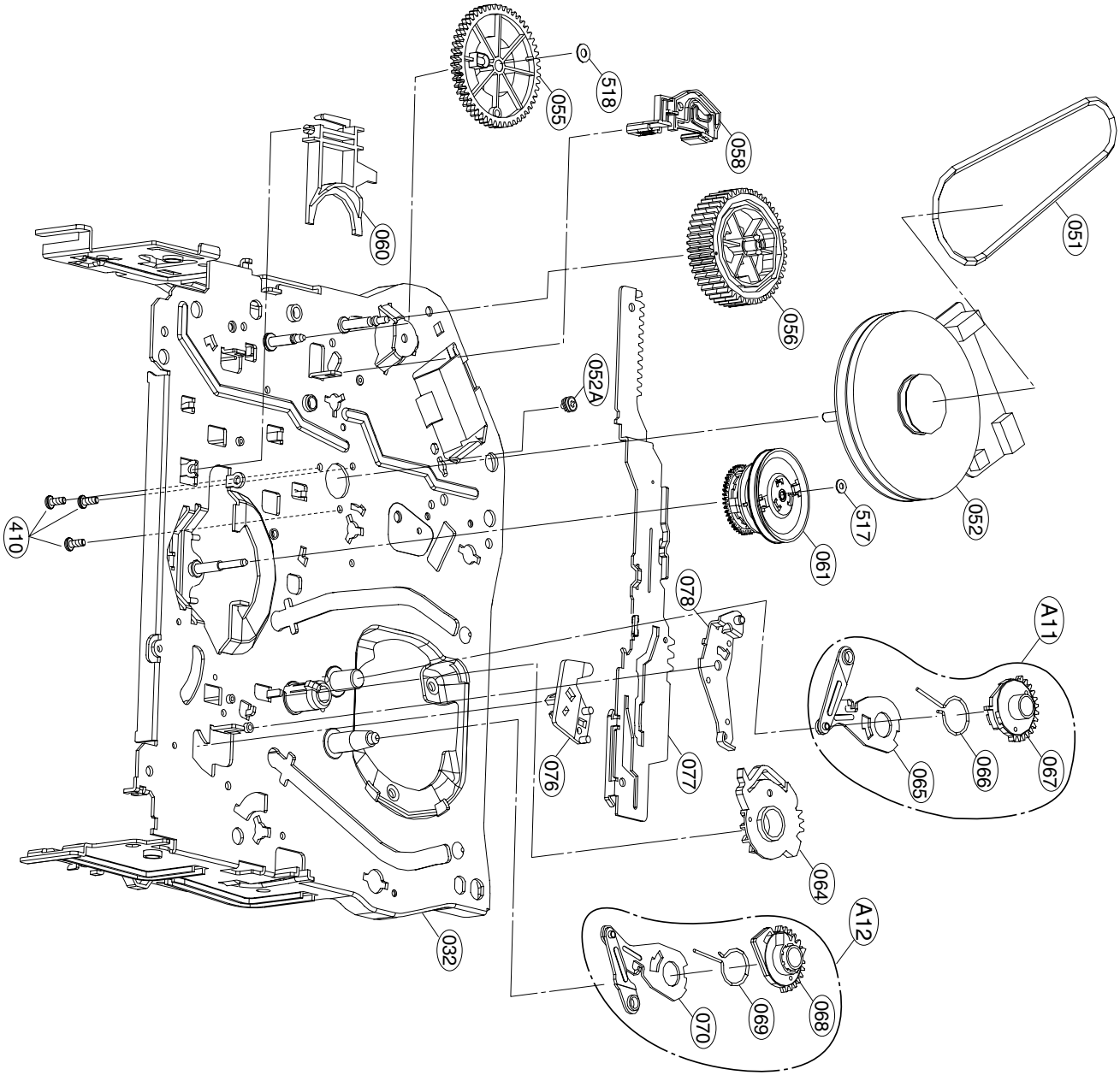


2. Moving Mechanism Section(1)

★ OPTIONAL PART



3. Moving Mechanism Section(2)



MEMO